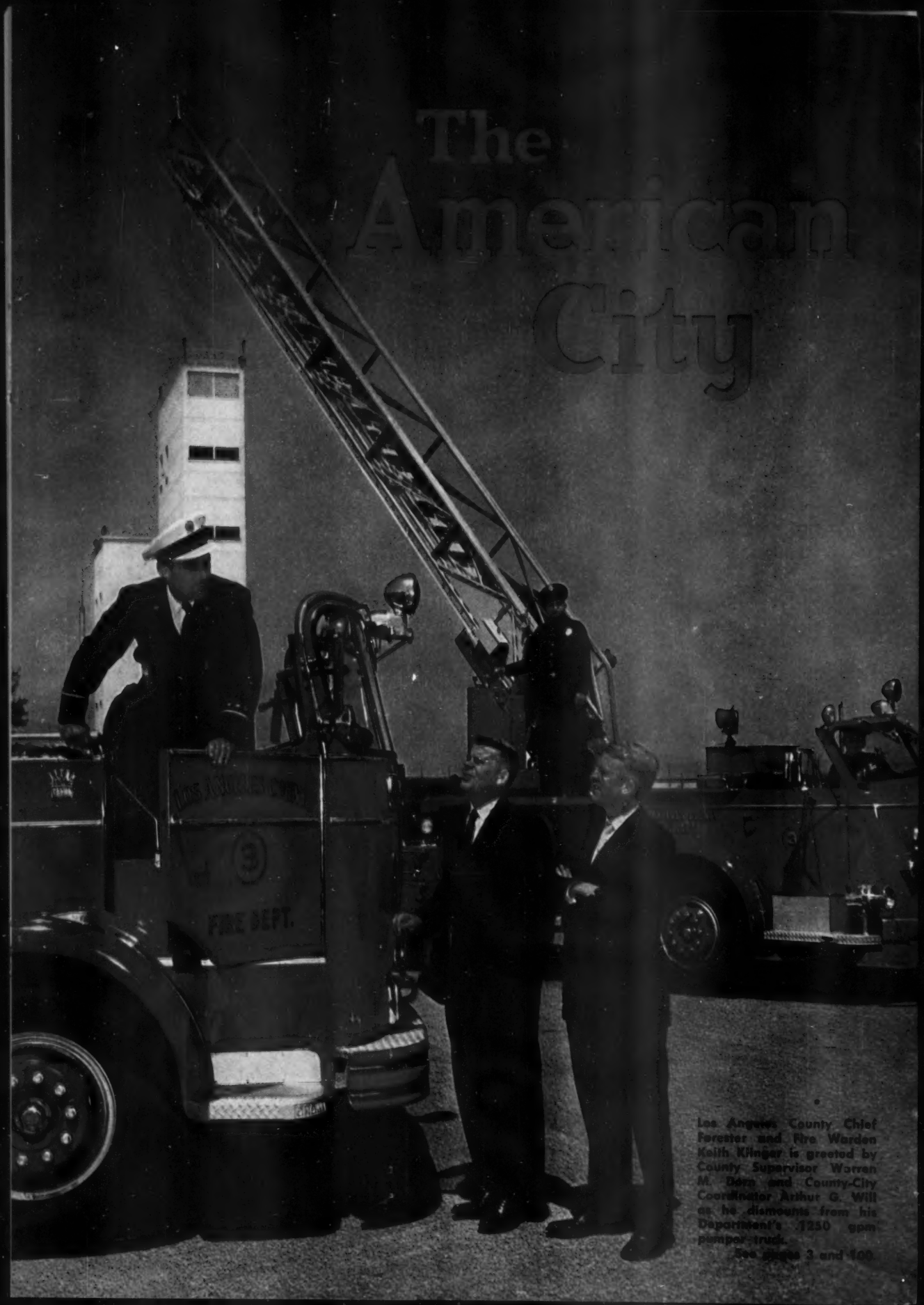

The American City

Los Angeles County Chief Forester and Fire Warden Keith Klinger is greeted by County Supervisor Warren M. Dorn and County-City Coordinator Arthur G. Will as he dismounts from his Department's 1250 gpm pumper truck.

See pages 3 and 100

The American City

Traffic outgrew these streets

Contractor: **Birsch Construction Co., Norfolk**

How Norfolk, Va., modernized them with Texaco Asphalt

Traffic on the old bituminous-treated street in the upper photograph called for a more durable pavement. Norfolk solved the problem by using the existing street, well consolidated by traffic, as base for a new plant-mixed Texaco Asphaltic Concrete surface. At relatively low cost, this street now has a resilient, rugged pavement, good for years of service with a minimum of upkeep.

The lower photo shows another Norfolk street after its width had been doubled to permit the free flow of traffic. New lanes were added at both sides of the old pavement by constructing a macadam base, topped by a binder course of plant-mixed Texaco Asphaltic Concrete. A second course of Texaco Asphaltic Concrete then was laid over both the old and new sections of the street. What was formerly a narrow, inadequate street is now a wide boulevard well suited to today's and tomorrow's traffic.

More than 1,000,000 square yards of Norfolk streets have been paved with Texaco Asphalt, an indication to other cities of the rugged durability and economy of Texaco-paved streets.

Helpful information for city officials on the various types of Asphalt paving suitable for streets, municipal airports and parking areas is supplied in two free brochures. Write our nearest office for copies.

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TEXACO

REG. T. M.

TEXACO ASPHALT

The American City

AUGUST 1959

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COVER PICTURE
It's a picture of three top Los Angeles County officials and two of the county's several hundred pieces of fire apparatus. Shown here, in front of the drill tower of the County Fire Department headquarters, are a 1956 American La France aerial ladder truck and a 1955 Crown pumping engine. County-City Coordinator Arthur G. Will tells quite a story on page 100.

AN INTERESTING LETTER SAID...

"Why in Heaven Don't You Speak Out on Inflation?"

I have received a number of letters from men and women who are concerned about inflation. One A. T. & T. share owner asked, "Why in heaven don't you speak out on this subject?"

The letter went on to say, "If you would alert the 1,625,000 share owners and 700,000 employees to the facts about inflation, they would help spread the news."

I warmly agree that it is essential to alert more people to the dangers of inflation and we in the Bell System are speaking up and speaking out at every opportunity.

In recent articles and bulletins to employees, the Bell System Companies have discussed the threat which inflation poses to the purchasing power of the dollar and to savings, insurance, and pensions.

At the annual meeting of A. T. & T. share owners I pointed out that inflation has been a tough problem in the telephone business. But we have not just talked about the problem—we have developed more efficient equipment and introduced many economies of operation. It is worth noting that the price of telephone service has generally gone up less since World War II than most other things.

But we know that the forces of inflation are far too widespread and powerful for any one individual or business to stem them singlehanded.

This brings me to the question that I believe so many are asking. "How can I help?" In these ways, it seems to me:

By giving spoken and written support to those who are working for a strong, sound, and stable dollar.

By opposing unreasonable demands, excessive spending, and schemes that add fuel to the inflationary fire.

Your friends and associates, and especially your representatives in Congress, are entitled to your constructive views.

For our part, we will continue to fight inflation by pushing research hard and effecting economies in our business. And by speaking out against this threat to the people and the country.

Fr Kappel

FREDERICK R. KAPPEL, PRESIDENT
AMERICAN TELEPHONE AND TELEGRAPH COMPANY, NEW YORK, N. Y.

VOLUME 74 NUMBER 8

The American City

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Municipal Index	EDUCATIONAL BUSINESS	AMERICAN SCHOOL AND UNIVERSITY

LETTERS TO THE EDITOR

Reorganizing Refuse Collection

The article written by Frank R. Smiley on the Oak Park, Ill., effort in improving its garbage refuse collection and disposal operations is illuminating ("Analysis+Reorganization=30% Savings;" June 1959, p. 116).

I know from my own experience in Yonkers, N. Y., that reorganizing refuse collection can be a very trying and harrowing experience. Even the relatively simple task of dividing the workload equally between all of the crews turns out to be rather complicated when all of the variables in the habits of the citizens in the amount of refuse that they put out for city collection are considered. I remember that in Yonkers when we made the change, the first several weeks required a great amount of extra work on the part of the city and considerable patience and forebearance on the part of the citizens until we got over the period of change and leveled out the operation into something resembling regularity, order and precision.

If Oak Park has had the same kind of backyard concrete vaults that we found existing in Cicero, Ill. when we made a study of their collection activities back in 1944 I can well understand the difficulties encountered. These vaults in many cases seemed to harbor enough rats that when the gate on the alley side was opened the refuse employee had to be prepared to defend himself.

Here, in Philadelphia, we can hardly wait until we have sufficient incinerator capacity to do the entire job by incineration. Even this presents a problem in the long run because we seem to be running out of low land for disposing incinerator ashes and the unburnables.

DONALD C. WAGNER
Managing Director
City of Philadelphia

EDITOR'S NOTE: Mr. Wagner was at one time the city manager of Yonkers, N. Y. and at that time reorganized the refuse collection service.

Sparkplugging Industrial Growth

I enjoyed the story on Hayward, Calif. Most of all, I liked the inference of the necessity of having a master plan for a city and what that plan can do toward orderly growth ("We Get Both New Industry and New People," June 1959. p. 100).

There are those who question such an expenditure because they say "things change too fast" and "soon it will be forgotten."

A fine aggressive annexation program is a real accomplishment. The result is good; the valuation helps the city and generated benefits cover the new areas annexed.

Hayward has a fine organizational set-up in its city. I can't find any areas which are not covered. It is so much a parallel to our Rochester program. Good planning and sound decision-making set the growth tenor for good community action.

H. E. KAMM
Councilman
Rochester, Minn.

EDITOR'S NOTE: Councilman Kamm also managed Industrial Opportunities, Inc., a group that has brought some very sound industries to Rochester, Minn.

Golden Anniversary

Congratulations on the occasion of THE AMERICAN CITY'S 50th year of publication. It is a pleasure to salute the leader in the field of municipal affairs publications.

JAMES C. MARVIN
Director
Public Library
Cedar Rapids, Iowa

Refuse Incineration Costs Challenged

Regarding Mr. Rogus's article, "Refuse Incineration," I should like to comment on the matter of relative costs, with particular reference to the tabulation on page 97 ("Refuse Incineration," July 1959, p. 94).

First, with regard to construction cost, there are so many factors other than the type of furnace which influence such costs that a comparison between actual figures for a number of different plants can be highly misleading. It is my belief that of two large plants having the same capacity (say 800 tons per 24 hours and up) and equivalent in all respects except that of furnace type, one having traveling grate furnaces would cost a maximum of $500 per ton per 24 hours more to build than one with "batch-type" furnaces and mechanical grates. The actual dif-

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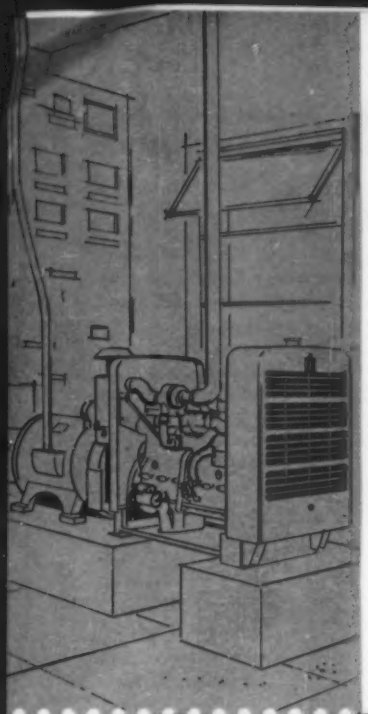

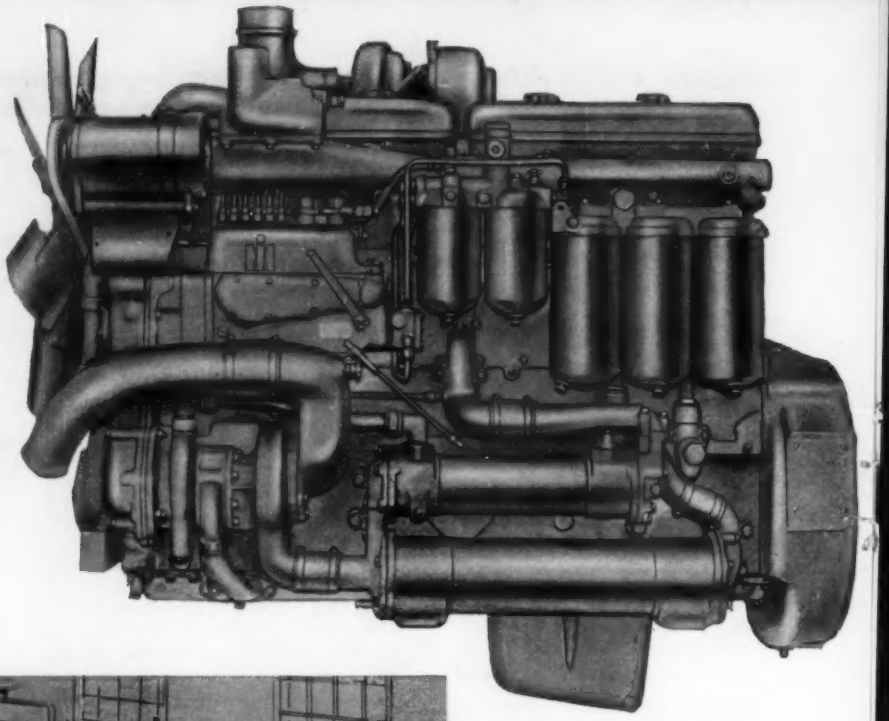

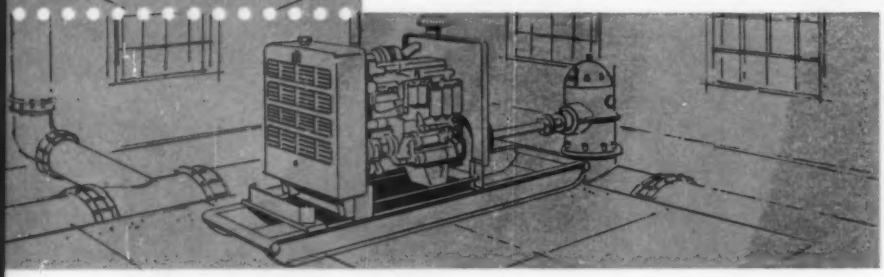

NEW UDT-817 DIESEL is a 4-cycle turbocharged engine with 817 cu. in. displacement and max. torque of 1,040 lbs. ft. @ 1,400 rpm.

New power, performance and price leader in the 385-hp diesel class

Here are three fast facts about the turbocharged new direct-start, direct-injection International 6-cylinder UDT-817 diesel that can mean big savings on your standby generator and pump power:

POWER—The UDT-817, developing 385 hp., leads the field in its size class.

PERFORMANCE—The specific fuel consumption of the UDT-817 is the lowest in its size class.

PRICE—The UDT-817 is the lowest priced engine in its size class in dollars per horsepower.

A wide variety of accessory equipment including air cleaners, flywheels for leading makes of torque converters and clutches, torque converter cooler, air control compressors, safety shut-offs, instruments and engine controls can be furnished to meet your installation requirements. Base, radiator, hood and dash, clutch and power take-off are available for complete power units.

The new 250-hp. D-817 is the naturally aspirated version of this same basic diesel engine. Your nearby International Power Unit Distributor or Dealer can give you full details of either new model or on the 30 other diesel and carbureted engines in his line. All 32 engines have one common feature—fastest payback power for users.

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International Harvester Co., 180 North Michigan Ave., Chicago 1, Ill.

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors . . . Self-Propelled Scrapers and Bottom-Dump Wagons . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

GUEST EDITORIAL

Civic Responsibilities Of Businessmen

The civic responsibilities—or lack of them—of businessmen are being discussed increasingly in business publications, in various association groups and within the industrial organization itself. Most of this discussion is apparently concerned with the pros and cons of participation in national politics by top management men.

But there is another aspect which is also extremely important. That is the positive encouragement of political, civic and social activity on the part of people at every level of responsibility.

There are two schools of thought on this subject expressed by industrialists. One school holds that the full obligation of the organization in the community is discharged in providing jobs, paying wages and taxes. This school insists that civic projects, educational problems and welfare financing should be left to the community. To participate, they feel, risks financial commitments of serious proportions—without commensurate returns to the organization.

The opposing view, a view we hold at Rockwell, is that business and industrial organizations have obligations and should welcome responsibility in all phases of citizenship. This view translates into participation with other elements of the community in civic affairs, welfare problems, improvement of educational facilities and measures to insure health and safety generally.

Rockwell's 19 plant managers and their staffs are encouraged to take an active, constructive part in community affairs. These activities are *not* "extracurricular" but are, we feel, part of our business and social responsibility. There is not a business or profession in any community that does not benefit or lose from the improvement or deterioration in:

1. the physical condition of the city's physical plant,
2. the quality of service rendered by the city and other governmental agencies,
3. the quality of service rendered by civic and social agencies, and
4. the availability of community resources and facilities to improve the physical, mental and moral health of the people.

Altogether there are about 18,000 communities in the United States. What is it that makes a community complete? The answer must be, partly, "that which satisfies the requirements of its population." Otherwise the population will move elsewhere. It must be, partly, "that which attracts new faces to replace those which pass away." Otherwise the community will stagnate and wither. The satisfying of requirements and enticing of new people comprises an underlying community responsibility of business and industry.

The progress of a community, and thus indirectly the progress of local business, can only be measured by the way in which the community maintains and improves the opportunities in the various fields of economic and social relations. Whether a man be a manufacturer, a retailer, or a professional man, he shares responsibility for the progress of the community. This responsibility, or citizenship as we call it, means participation—not domination—in community decisions.

There is also a selfish reason for the industrial leader to take part in local government in a constructive way. In looking to a good reputation locally the manufacturer not only creates a better feeling about the company as a good place to work, to sell, or to buy, but he is helping the national reputation of the free enterprise system of business. The local manufacturer delivers a block of favorable opinions in much the same manner as the county political party chairman delivers a block of votes to the national candidate.

Finally it must be remembered that it is everyone's business to foster a community spirit in which differences of opinion can be discussed and resolved in an atmosphere of mature responsibility. Participation by the industrial leader in local government represents a sizable investment in time, work and money, but we feel it is a good investment. In civic affairs, silence is not at all golden—it is just plain costly.

W. F. ROCKWELL, Jr., President
Rockwell Manufacturing Company
Pittsburgh, Pa.

Help control Water Department costs—

1. By accurate registration of all water sold.
2. Meter all services—homes, factories, public buildings.
3. Use water meters with proven low maintenance costs.

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are the world's best!

Remember — you can't buy a better water meter than **HERSEY.**

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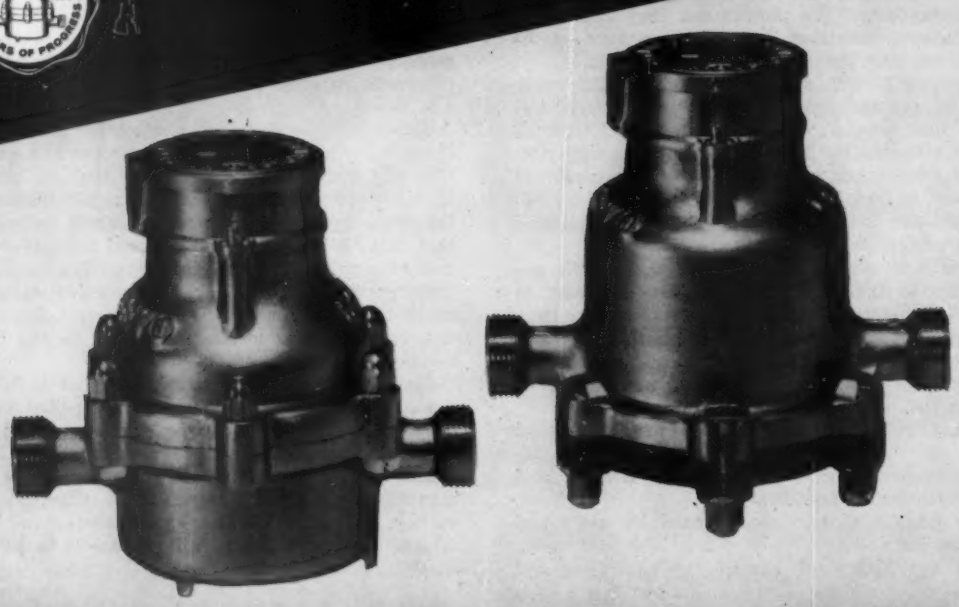

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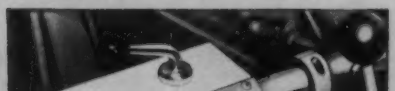
"This job was completed in about



Electronic Computer Simplifies Sewer Hydraulics Problems

Commissioner of Public Works George DeMent looks on as Aizad Kahn of Chicago's Bureau of Engineering operates the city's new digital computer.

By enlisting the aid of an electronic computer, City of Chicago engineers will save both time and money in the solution of various engineering problems. In addition, they are now in a position to work on problems involving such a myriad of calculations that manual solutions are impractical. The unit installed in the Bureau of Engineering on a rental basis, is a G-15—a low cost, medium size, general purpose electronic digital computer manufactured by the Computer Division of Bendix Aviation Corporation.

Three computer programs already developed by city engineers represent new G-15 applications that are significant advances in the field of sewer hydraulics and structural analysis. All three represent the combined efforts of Clint J. Keifer, sewer hydraulic engineer, and Aizad Kahn, a civil engineer in the Bureau of Engineering.

Two of the developments are known as "Program for Urban Runoff Computation" and "Program for Structural Analysis and Design of a Reinforced Concrete Arch Sewer." Both have been published and made available to other G-15 users through the Bendix Computer Users Exchange Organization. City engineers are now completing work on the third program to determine optimum pumping station capacity. The calculations involved in this problem make manual solution impractical. This program will also be published and made available to other computer users.

The runoff computation was prepared for the "Chicago Hydrograph Method of Sewer Design" developed by A. L. Tholin, now administrative engineer in the Department of Public Works, and Mr. Keifer. Mathematics involved in the "Chicago Method" require approximately one month manually for a 9,000-acre area; machine time on the computer is one hour.

The computer program for the arch sewer design reduces manual mathematics of one week to 23 minutes of machine time.

In addition to sewer applications, the computer will be used in connection with the city's vast superhighway program, including bridge design, interchange geometrics and other similar problems with complex and repetitive mathematics.

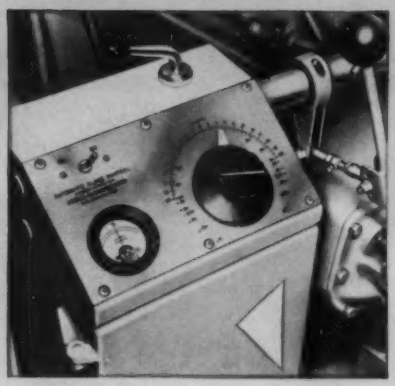
Congress Debates More Sewage Aid

In the current Congress, at least six bills have been introduced that would increase federal grants for sewage purification projects. HR 3610 introduced by Congressman Blatnik of Minnesota, and an identical bill, S805, introduced by Senator Humphrey of the same state, increases the maximum allotment for any one project from $250,000 to $500,000. It also permits municipalities to combine in a single project, each eligible for its share of the maximum. A bill introduced by Congressman Blatnik in the last session of Congress providing federal aid for sewerage projects eventually became law. His present bill has been passed by the House and is now awaiting further action in the Senate.

Congressman Johnson of Colorado also has introduced a bill increasing the grants to a maximum of $500,000 per project. In his bill, however, municipalities combining to build one plant would be limited to a 40% grant or $300,000 per municipality, whichever is smaller.

"This job was completed in about half the anticipated time, thanks to Caterpillar availability and Preco Automatic Blade Control"

—Vice President H. A. Uren, Bacco Constr. Co., Iron Mountain, Mich.



On 21-mile road grading job near Marquette, Mich., this Cat No. 12 Motor Grader is equipped with Preco Automatic Blade Control that is available for No. 12 and No. 112 Motor Graders.

Mr. Uren knows how important machine availability is. He puts it at the top of his list of reasons for relying on Caterpillar equipment. This on-the-job availability is built into the Cat No. 12 Motor Grader right at the factory. Its frame is the strongest of any grader on the market. Box section construction makes the circle rugged enough to take heavy-duty punishment. The exclusive oil clutch cuts down time—it can operate up to 2,000 hours without adjustment, lube service is virtually eliminated.

Another big reason Mr. Uren—and his operator, Guido Jafolla—like the No. 12 is the optional Preco Automatic Blade Control. With this amazing device, the operator simply selects the desired slope on a large, easy-to-read dial. The Automatic Blade Control guarantees him blade accuracy to within ⅛ inch in 10 feet. "We don't even need a subgrade planer," says Operator Jafolla. "And we're miles ahead of the paving train."

High on-the-job *machine availability* and the *Preco Automatic Blade Control*—just two of many reasons *you* should choose the Cat No. 12 Motor Grader. Ask your Caterpillar Dealer to demonstrate this hard-working machine right on your job at your convenience. *Seeing's believing.*

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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BEST MOTOR GRADER BUY FOR 20 YEARS

STREET CONSTRUCTION AND MAINTENANCE

City-Citizen Teamwork Brings Better Streets

As part of an extensive street maintenance and improvement program, La Mesa, Calif. is converting all its oil-mix streets to asphaltic concrete. At the same time, the city is encouraging property owners to undertake the installation of curb, gutter and sidewalk wherever applicable. The street reconstruction is financed from general funds while the property owners stand the cost of the related work.

We first use a Caterpillar grader to scarify the old oil-mix material and we then compact it with a single drum sheepsfoot roller and an 8-ton tandem roller. The material is then bladed to the desired grade and crown and recompacted with the steel roller. This gives us an oil-treated base and eliminates the need for hauling base materials.

The surface course consists of 2½ to 3 inches of plant mix asphaltic concrete, 85-100 penetration, applied with our True-Lay paving machine. This unit, towed by the asphalt trucks, can put down 7½ tons in three minutes. We have laid up to 969 tons in 8 hours. The paver and a recently acquired Jay tamper have helped increase production by about 60% the first ten months of our present program. So far we surfaced a little over ten miles of streets or an area of 155,834 square yards, using 19,000 tons of plant mix material. The day following application, the surface is sealed with RS1 oil and sanded.

City forces do all the work except that trucks are rented for hauling on larger jobs. The street crew normally comprises ten men, including the foreman. However, on a heavier job or longer run, generally meaning more than 300 tons of asphaltic concrete laid in one day, six additional men from other public works divisions supplement this crew.

Last year our average cost to lay, seal and sand came to $6.24 per ton. The average cost for the entire process of reconstruction, including base preparation and surface course, amounted to $8.30 per ton or about $0.09 per square foot.

With the base work completed, city crews put down the asphaltic concrete surface course.

As previously mentioned, the street work is paid for out of general funds while the property owners pick up the cost of related work. We find that on our older streets such joint participation normally accomplishes a good permanent set of improvements at what is generally regarded as an equitable financial approach.

The ever-present patchwork has not been neglected. Patching procedure consists of first squaring the hole, removing six inches of the fill material, replacing this with four inches of granite for base, and finishing up with two inches of asphaltic concrete. We tamp the base with our Jay tamper and also use it for compacting the surface course unless the patch is sufficiently large for our five-ton roller. Patches as well as the resurfaced streets are sealed with an RS1 emulsified asphalt.

DUDLEY N. LAPHAM
City Manager
La Mesa, Calif.

The completed job makes an attractive residential street. In this case property owners had curb, gutter, sidewalk and drive aprons paved prior to the city's reconstruction work.

CAST IRON PIPE WINS THE VOTE

Recently a questionnaire was mailed to water utility managers all over the U. S. One question asked was: *What kind of pipe do you prefer and why?* With 42 states heard from, the vote is overwhelmingly in favor of cast iron! Here are typical comments:

"1. Cast iron pipe is permanent—long life. 2. Lined pipe cuts down complaints of 'red' or 'rusty' water. 3. Mechanical joints are time and labor-saving over other types of joints, and are more flexible."

—Iowa

"Long life has been proven. I have personally observed pieces cut out of existing systems which were laid prior to the turn of the century. Such observations indicated the pipe to be as good as the day it was laid."

—Kansas

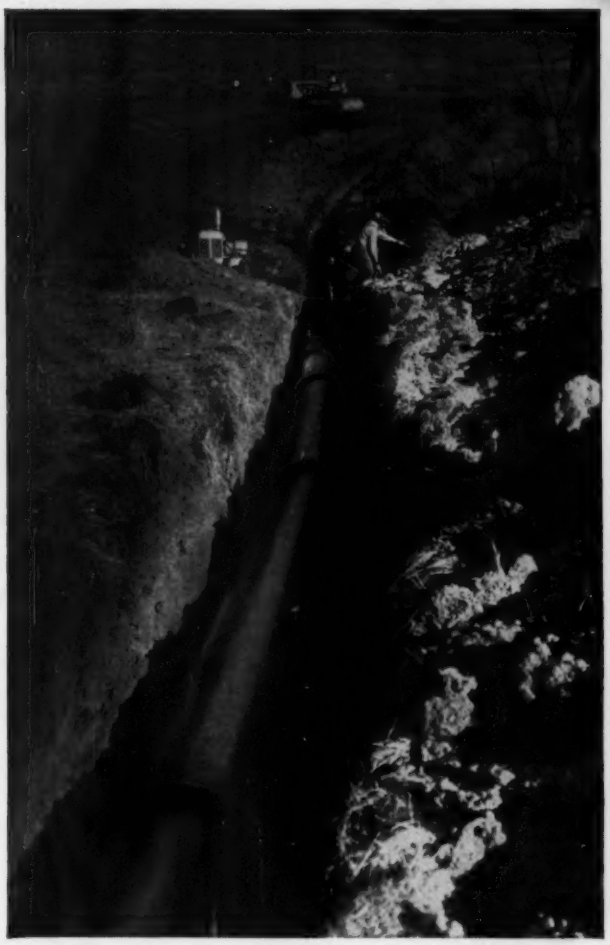
"Cast iron pipe has been in use for 200 years, and the record speaks for itself. All the other types have their use, but we would not recommend them in a well-built, expanding water works distribution system or large transmission lines."

—Illinois

HANDS DOWN!

"We are located in a limestone area. We find cast iron pipe will absorb more rock damage than any other pipe. We also use cement lined pipe to overcome our corrosion condition which exists in our water."

—Pennsylvania



"It is very easy and fast to lay, and you can swing the joint enough in places where you can save time and money."

—New Jersey

Three reasons why cast iron pipe is America's greatest water carrier:

1. More miles of underground cast iron water mains are now in use than of all other kinds of pipe combined.
2. More miles of cast iron water mains are now being purchased and laid than of any other kind of pipe.
3. Impartial surveys prove that today's water utility officials and consulting engineers prefer cast iron pipe for underground water distribution by an overwhelming majority.

. . . good reasons for you to choose

CAST IRON PIPE

THE MARK OF THE 100-YEAR PIPE

Write for complete information to Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Ill.

Bigger routes and better salt spreading resulted from adapting this old garbage collection body for other duties. The adaption releases regular dump trucks for other work.

Old Equipment Fills New Assignments

When Waterloo, Iowa replaced its refuse-collection fleet, the street department inherited the old units—four 1948 Dodge trucks with 9-yard Heil Collecto-Pac bodies. Three of these have been converted for seasonal use, thereby freeing dump trucks for other essential duties.

Two of the trucks now perform the important tasks of leaf collection in the fall and salt spreading during the winter. Conversion of the units for this work required only minor changes in the body structure. We removed the hopper and cut an opening in the top of the body. By making use of the body in this way we succeeded in doing a quicker and cleaner leaf-collection job.

Two dump trucks with Tarco Scotchman salt spreaders formerly handled our ice-control work. The trucks were loaded with bulk salt dispensed through an opening to the spreaders. The big disadvantage was exposure of the salt to the weather. It caked and did not feed properly. Here again, our old garbage trucks came in handy.

The Heil bodies now serve as loading boxes for bulk salt. We removed all obsolete parts from the body, constructed a false bottom covered with galvanized sheet metal, raised the front of this false bottom by about 3 feet, and covered the opening cut in the top of the body with canvas to prevent exposure of the salt to the weather. This change-over gives us the following features:

1. **Loading capacity retained to 5 yards.**
2. **Loading bulk salt into truck from salt bin, or by conveyor or front end loader.**
3. **Eliminating bagging of salt for the spreaders.**
4. **Expanded routes because of increased salt capacity.**

Leaving the side arms on the body attachment permits raising the body gradually to keep salt flowing into the spreaders.

One unit with the sides and top of the body cut off serves as a base unit for our John Bean Rotomist Sprayer. Formerly, this was trailer-mounted and towed by a dump truck. Our production records show that this idea gave us a big lift toward better and more effective pest control. Both driver and spray operator praise the flexibility of the new set-up as compared with the former truck-trailer operation.

City forces handled all conversion work. The three units permitted the street department to reassign trucks previously used for seasonal jobs for regular sanitation and maintenance work. We especially appreciate this in winter when trucks are needed so badly for plowing snow.

CARL C. FAGERLIND
Street Commissioner
Waterloo, Iowa

Motorized White Wings

Two types of vacuum cleaners aid the street cleaning department of Frankfurt, Germany in its daily job of picking up dirt and debris. Former street-sweepers are now motorized with small vacuum sweepers that allow them to get into corners and sweep the dirt from sidewalks and street gutters. A large truck-mounted vacuum sweeper keeps the runways of the Frankfurt Rhine-Main airport clean.

Don't run short of salt when demand is heaviest

Order enough Morton Rock Salt now

Be prepared before unexpected storms ice your streets and highways. Eliminate confusion, extra work and accidents by stockpiling Morton Rock Salt now for winter ice and snow removal. Store it in unused buildings, garages, loading platforms or outdoors near key traffic points. You can do this without loss or inconvenience—and, if you wish, a Morton Consulting Engineer will be happy to advise you.

Morton Rock Salt is 8 times better than abrasives. One man and one truckload of Morton Rock Salt does a better job of ice and snow removal than 8 men and 8 loads of abrasives. Morton Rock Salt leaves no messy residue on streets, in gutters and sewers . . . needs no flushing after a thaw . . . won't blow away or leave a rutted, dirty pavement. Non-toxic, Morton Rock Salt also is inexpensive. (It generally costs far less than calcium chloride.)

Send for more information today! Fill in and mail coupon below for valuable help with ice and snow removal.

☐ *Please send me your free book on ice and snow removal.*

☐ *I would like a Morton representative to advise me on how best to stockpile Morton Rock Salt for my town.*

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Address_____

City_____ County_____ State_____

MORTON SALT COMPANY

INDUSTRIAL DIVISION

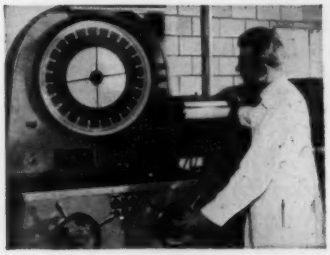
Dept. AC-8, 120 So. LaSalle Street, Chicago 3, Illinois

New, improved USS American Welded strength of 75,000 psi...and a

(Continued from page 5)

Wire Fabric has minimum tensile minimum yield point of 60,000 psi...

to give you a better, stronger product at no increase in cost!



For more than 50 years, USS American Welded Wire Fabric has been doing an outstanding job of reinforcing all kinds of concrete work—from porches and walks to skyscrapers and highways. And now—because of its greatly increased tensile and yield strength—it will give even greater strength, longer life, increased freedom from cracking and less maintenance. Also, it will permit longer joint spacing for reinforced slabs on ground or less steel if present joint spacing is used. The new improved Welded Wire fabric will have a 75,000 psi minimum ultimate tensile strength with a minimum yield point of 60,000 psi.

Closely controlled laboratory tests show that if the conventional bond stress theory is applied to American Welded Wire Fabric's resistance to slip, fantastically high bond stress values of from 1,000 psi to 2,700 psi are computed. (See ACI Proceedings, Vol. 48, April, 1952.) Continuing bond test research under the direction of American Iron & Steel Institute has shown such good mechanical anchorage in the concrete as to permit this increase in the Tensile Strength of Fabric. American Steel & Wire is able to present this new product because of the tested bond values which enable designers to take advantage of a higher fabric yield point.

Just one example of the advantages of this improved fabric is in one-way slabs. The ACI Building Code 318-56 will allow unit tensile strength for fabric in main reinforcement of 30,000 psi in one-way slabs of 12-foot span or less, provided reinforcing members are ⅜" or less. Previously, designers were limited to 28,000 psi working stress with fabric, and only 20,000 psi with intermediate grade bars.

The new Welded Wire Fabric will cost no more. It will come in the same prefabricated rolls or sheets for easy handling and placing. Therefore, to get the improved product on your job at no extra cost, be sure to specify USS American Welded Wire Fabric.

USS American Welded Wire Fabric is available in a wide variety of styles, sizes, lengths and widths . . . in wire gauges from ½" diameter to 16 ga., and in longitudinal and transverse wire intervals of 2" to 16". Steel areas for all normal structural reinforcing in all types of construction are readily available. For more information on USS American Welded Wire Fabric—and its new tensile strength—write to American Steel & Wire, Dept. 990, 614 Superior Avenue, N. W., Cleveland 13, Ohio.

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American Steel & Wire Division of United States Steel

USS

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
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United States Steel Export Company, Distributors Abroad

Always ask, *"is it Reinforced"*

DEMPSTER®

Flink HDWS4 Completely Hydraulic Tailgate Spreader — A fleet of these efficient rigs help keep traffic rolling on the Illinois Tollway! Left-rear spinner permits easy 2-3 lane spreads in one pass; saves material. Hydraulically operated, Cab controlled, 2-speed auger permits instant change from abrasives to straight rock salt. Volume controlled by hydraulically operated feedgate.

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FLINK SPREADERS

When Specifications Require

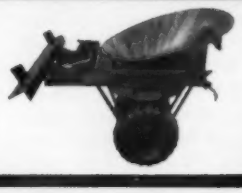
- **ONE MAN OPERATION**
- **LOW MAINTENANCE**
- **LOWER COST**

Flink LMC Hopper Spreader — Handles salt, cinders and sand for heavy-duty ice control. Pea gravel and chips for seal coating. Choice of PTO, hydraulic or gasoline engine drive, Cab controlled. Uses the only power transmission of its kind in the field. No worm gears, no "out-of-straight" shafts of U-joints. Differential equalized drive.

Flink HD42 Hydraulic Drive Tailgate Spreader — Self-feeding. Handles sand, chips, cinders, calcium chloride, chat etc. Forward spread for ice control, reverses for seal coating. Spreads from width of truck to width of street, thick or thin. Replaces tailgate on present trucks. Trips for dumping just as original tail-gate did.

Flink Model SS Pull-Type Spreader —

Can't be beat for simple maintenance and operation. For low cost ice control, seal coating and dust control.



BAKER Flink SNOW PLOWS

FOR FAST, LOW COST SNOW REMOVAL!

Reversible or one-way plows for 1½ to 5 ton trucks and up. Sectional or one-piece, full length cutting edge trip. Exclusive blade-hinge weldments in place of hinges cut maintenance. Full 3¼" wear on a 6" cutting edge. Operating position adjustable 65° or 75° from horizontal.

For literature or name of nearest distributor, write:

THE Flink co. STREATOR, ILLINOIS

5509 North Vermillion Street

(Continued from page 5)

ference, if bids were obtained on a competitive basis, would probably be even less.

On the other side of the picture, the operating cost comparison in the tabulation appears to me to favor unduly the traveling grate furnaces. A computation can be related to a hypothetical plant having a nominal capacity of 1,000 tons per 24 hours, which would be based upon the anticipated maximum rate of refuse production some 15 to 20 years in the future, with the average rate of operation during the early years not more than two-thirds of plant capacity, or about 175,000 tons per year. If the plant has four furnaces, the maximum saving in operating cost which I can visualize is a reduction in the operating force of one man per furnace per shift, which, with three-shift operation would amount to around $75,000 per year.

If the above figure for the difference in first cost of $500 per ton per 24 hours is accepted and interest and amortization are taken at 7.5%, the difference in fixed charges in favor of the "batch-type" furnaces is $37,500 per year. Thus, the net annual saving in favor of the traveling grate furnaces would be about $37,500, or approximately 21 cents per ton of refuse. Whether or not such a saving could be realized in actual operation is somewhat questionable. In any event, this figure seems to me to be on the high side, even though it is about 10% of the amount indicated in the article.

I should also like to suggest that there may be room for differences in opinion on some of the other statements in the article, as, for example, the extent to which "batch-fed" furnaces are being replaced by "continuously-fed, mechanically-stoked" furnaces, and that there is greater need now than formerly for careful analysis of the possibilities for utilizing waste heat. Perhaps, also there has been limited experience with some of the new developments described.

SAMUEL M. CLARKE
Greeley and Hansen, Engineers
Chicago, Ill.

A Note of Thanks

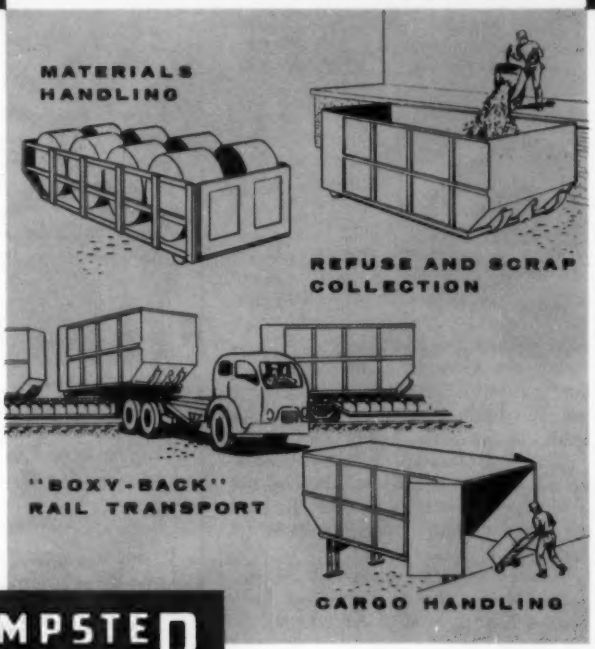
Many thanks for the fine presentation of our "Central Traffic Distributor for Downtown Stamford" in the April issue of your publication (p. 109).

JON A. SMITH
Planning Technician
Stamford Planning Board
Stamford, Conn.

DEMPSTER® DINOSAUR . . . Picks Up 40 Cubic Yard Detachable Containers—15 Ton Loads

The System of a Hundred Uses

Here's the detachable container system of a hundred uses. The simple, powerful, one-man DEMPSTER-DINOSAUR automatically picks-up . . . hauls . . . dumps . . . puts down . . . or pushes off on dock, loads limited only by the size of the truck or by highway restrictions. All handling operations are performed without the driver leaving the cab . . . no cables to hook on . . . no chains . . . . . . sheaves . . . winches. Models available for single or tandem axle chassis . . . 22,000 to 30,000 pound gross loads. Containers, six to 40 cu. yds. and over, available for refuse, scrap, materials handling, cargo, "boxy-back" rail shipments and many other uses. Write today for brochure or for a demonstration in your city.



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OUR MUNICIPAL NOTEBOOK

Three Communities Study Consolidation

The municipalities of Ladue, Frontenac, and Huntleigh Village, part of the St. Louis metropolitan area, asked the Governmental Research Institute to investigate the merits of consolidation, and have learned that they would get a lot more municipal service for the tax dollar spent and retain their small-community residential character.

Ladue is the largest of the three villages, covering an area of 8½ square miles. It incorporated in 1929, consolidated with two other communities in 1936, and annexed other areas at various times later. Its current population is a little over 9,000. Nearly 90% of its land area is zoned for various types of residential use. Only 3% is set aside for commerce and industry.

Frontenac covers an area of 2.8 square miles and has a population of 2,200. About 96% is zoned for residential use and 1% for commercial. The residential area is nearly all zoned for 1-acre lots; of this, more than 20% is undeveloped.

Huntleigh Village covers an area of a little less than one square mile and has a population of 358. It is composed completely of single-family residences. About two-thirds of its area is zoned for 2-acre residences and the remainder for 3-acre.

The study shows that consolidation would have no effect on the tax rate in Ladue; it would lower the rate from 69c to 40c per $100 assessed value in Frontenac; and would raise the rate in Huntleigh Village from 34c to 40c.

From a service standpoint, Ladue would be able to increase its police, fire and street personnel and equipment; at the same time Frontenac and Huntleigh Village would receive the same level of police, fire and street maintenance now provided by Ladue and would be eligible for lower fire insurance ratings.

The consolidation would create a municipality of 12¼ square miles and a population of 11,600. In this population range it could form a home-rule city charter.

A copy of this report can be obtained from the Government Research Institute, 1016 Arcade Bldg., St. Louis, Mo.

EDITOR'S NOTE: Despite the report, consolidation failed in a recent special election. Voters in Frontenac and Huntleigh Village cast heavy majorities in favor of it. Ladue cast a large majority against it.

Air Pollution Control Notes

Dirtiest Hours

The dirtiest times of the day in ***Wheeling, W. Va.,*** are between 7 and 10 a.m. and 5 and 7 p.m., according to James Martin, the city's Air Pollution Control Director. Mr. Martin made the announcement after analyzing samples taken by automatic sampling equipment in his office. Most of the activity of the city is started between 7 and 10 a.m., and at about 5 p.m. cooking fires are started up and furnaces are being banked for the following day, Mr. Martin said.

Air Sampling Network Grows

Four more cities have recently joined the National Air Sampling Network of the United States Public Health Service, Department of Health, Education and Welfare. They are ***Hammond, Ind.; Montgomery, Ala.,*** and ***Hamilton*** and ***Weirton, Ohio.***

Smog and Health

The results of a recent study made by the Los Angeles County Medical Association show the following: 609 doctors said they have authenticated cases of persons leaving the area because of smog, 47 said "no" and 98 had no opinion; 481 doctors said they had recommended that patients move out of the area because of the effects of smog on their health, 629 said they had not and 71 had no opinion; 599 doctors said they believe air pollution is a contributing factor in cancer of lungs and air passages, 84 said they did not think so and 498 had no opinion.

Mobile Test Laboratory

The State of Kentucky recently dedicated a mobile testing laboratory for occupational health and air-pollution studies, the first of its kind in the state. The new unit will provide on-the-spot laboratory services for industry throughout the state, as well as sampling facilities for air-pollution studies.

Two Cities Start Programs

Ashtabula, Ohio has passed an air-pollution ordinance. The new law creates the post of air pollution inspector, to enforce the ordinance. The inspector will serve under the city manager.

Wilkes-Barre, Pa. has passed an air-pollution law, which establishes a bureau of smoke prevention, with the principal health officer of the city as director. The ordinance controls the amount of smoke, soot, ashes, cinders, dust and fumes which may be emitted into the atmosphere.

A Good Use for Smoke

Miss Betty Lou Raskin, a chemist at the Johns Hopkins University Radiation laboratory, told the recent national meeting of the American Chemical Society about her invention of foamed plastic smokes made from chemical compositions similar to those used in Christmas decorations and household sponges. Miss Raskin said that the smokes might have many diverse uses. Examples: to protect crops from frost, to remove impurities from the atmosphere, and to shield ground personnel from the thermal radiation emanating from experimental nuclear blasts.

Pennsylvania Makes Dust Survey

The Pennsylvania State Department of Health, in cooperation with the United States Public Health Service, is conducting surveys of dust and fumes in ***Philadelphia, Pittsburgh, Reading, Harrisburg, Williamsport,*** and ***Meadville.*** In addition, every community with a population of more than 2,500 has been asked to answer a questionnaire concerning local air pollution problems. Results of the surveys will be used to aid in the establishment of a statewide air pollution control commission.

Fantastic?

Not when you *rent* a Wayne Street Sweeper, pay for it out of operating funds... and actually own it at the end of the rental period for just $1.00—*all without capital investment!*

Cities all across the nation... and cities of *every* size... are making this Wayne Rental Plan the simple, convenient method of starting their own street sanitation program. Labor savings alone can pay the cost, streets are kept sparkling clean, and the Wayne is yours for continued service for years to come.

Before you invest in *any* sweeper equipment or program, send for the brochure outlining the exclusive Wayne Rental Plan for municipalities. It's yours for the asking—*write today!*

WAYNE

WORLD'S LARGEST PRODUCER OF POWER SWEEPERS
SOLD AND SERVICED EVERYWHERE

WAYNE MANUFACTURING CO.
2431 East Lexington Street, Pomona, Calif.
Send me details on the Wayne Rental Plan

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POMONA, CALIF. • CHICAGO, ILL. • NEWARK, N.J.

Waterloo City Hall Cornerstone

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now at your Allis-Chalmers dealer

the ONE FORTY FIVE—

OUTSTANDING VALUE IN

MEDIUM-POWER GRADERS

80 hp 21,540 lb

. . . with features you can't match for the money on any grader

The new Allis-Chalmers ONE FORTY FIVE motor grader is built to outwork and outproduce any grader near its size...at a price you can't afford to overlook. An exclusive combination does it: high capacity front axle and throat clearance, big-grader power train, ROLL-AWAY moldboard, plus benefits that help an operator to do more work.

The ONE FORTY FIVE power train is built for long, hard grading service. Simple, dry-type, ceramic-lined clutch; constant-mesh transmission; heavy-duty gear train—all much stronger than you usually find in a grader this size.

Measure the big clearance under the front axle. It straddles huge windrows without drag. Watch the ROLL-AWAY moldboard lift and roll the load. Check the load-clearing height from cutting edge to circle. You'll get more grading production, more oil-mix ability than any other medium-sized machine can give you.

Now check the ONE FORTY FIVE'S production-boosting operator advantages. Platform is clean and roomy. Suspended pedals provide matchless foot room. Full visibility all around takes the strain out of operating. Toggle-type control levers work with quick response . . . allow ample road feel without wrist-snapping backlash.

You be the judge. Your Allis-Chalmers dealer will show you an eye-opening demonstration of the ONE FORTY FIVE. Then keep its low cost —and high performance—in mind when you write *your* specifications. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wis.

ROLL-AWAY is an Allis-Chalmers trademark.

move ahead with ALLIS-CHALMERS

. . . power for a growing world

Waterloo City Hall Cornerstone Contains Voice Message for 2059

One hundred years will pass before anyone is able to play back a tape recorded recently in Waterloo, Iowa.

On March 21, the City of Waterloo dedicated its new $800,000 city hall. As part of the cornerstone-laying ceremony, Mayor Ed Jochumsen placed a number of items representative of 1959 in a copper box designed to be opened by Waterloo's future city administrators at the centennial anniversary of the building.

Mayor Ed Jochumsen trowels mortar in place to seal the box of 1959 memorabilia into its niche behind the cornerstone of Waterloo's new city hall building where it will remain for a hundred years.

In addition to city documents, statutes, and maps, the box contains items selected by 20 local businesses for the historic value they might have in the year 2059.

Most firms contributed brochures outlining their particular operations. The public school system provided its yearly curriculum. Waterloo's Chamber of Commerce offered a copy of the city business and residential directory.

Radio Station KXEL—in addition to contributing technical data—included a tape recording of excerpts from present programming.

The recording was made at 7½-ips full track on KXEL's professional recording equipment, using "Scotch" brand 150 magnetic recording tape—a tape especially suited for Iowa's 110°F summers and 20°-below winters, as well as century-long storage. Designed for extremes of temperature and humidity in all-weather outdoor recording. this 1-mil polyester-backed tape features a superpotent oxide and 50% longer playing time.

After the recording session at the studio, the tape was sealed in a plastic bag and encased in an aluminum tape storage can. The can was tightly sealed with "Scotch" brand masking tape to keep dust or moisture from the recording.

Elaborate instructions also were included in the can to assure the tape is handled properly when—a century from now—it is replayed by Iowans who will hear a 1959 voice exclaim: "Listen! Listen! This is the sound of 100 years ago—the sound whose remotest echoes have passed away, but for the magic caught up in this recording out of the past."

Good Neighborhoods Have Low Accident Rates

If people like their neighborhoods, the chances are strong that they will enjoy a substantially lower accident rate. One of the most obvious differences between a neighborhood with a low accident rate and one with a high, is the degree of community pride exhibited.

This conclusion was strongly evident in a study undertaken by four students of Worcester Polytechnic Institute in cooperation with Dr. Kenneth I. E. Macleod, Commissioner of Public Health, Worcester, Mass. The students examined two census tracts; one has the second highest accident rate in the city, the other, an "average" accident rate. They conducted a door-to-door survey asking whether anyone in the household had suffered an accident; if so, what its nature was, where it happened, whether insurance covered medical expenses. They also inquired about accident hazards in the area, and determined how long each family had lived in its present home. Local newspapers cooperated with the survey, and Dr. Macleod presented each investigator with a letter of identification.

In the high-accident tract, they found general physical conditions fair to poor, relatively heavy traffic, and a lack of recreational facilities for children.

In this area, the investigators found the people generally disinterested or unaware of accident hazards. There were many obvious safety hazards, yet more than half of the respondents felt that there were none. Although there was an obvious lack of recreational facilities, more than one-third stated that they felt recreation facilities to be adequate.

In the second tract are primarily single-family homes. The area appears neat and property is kept in good repair. While the investigators found no dangerous conditions, nevertheless 44% felt that serious accident hazards were present. Moreover, nearly one-third felt that recreational facilities were inadequate.

City Planning Fellowships Awarded

Five new fellowships have been granted and five others renewed under the Sears-Roebuck Foundation's city planning and urban renewal fellowship program.

Each fellowship includes a stipend based on need and a $1,000 per year unrestricted grant to the school.

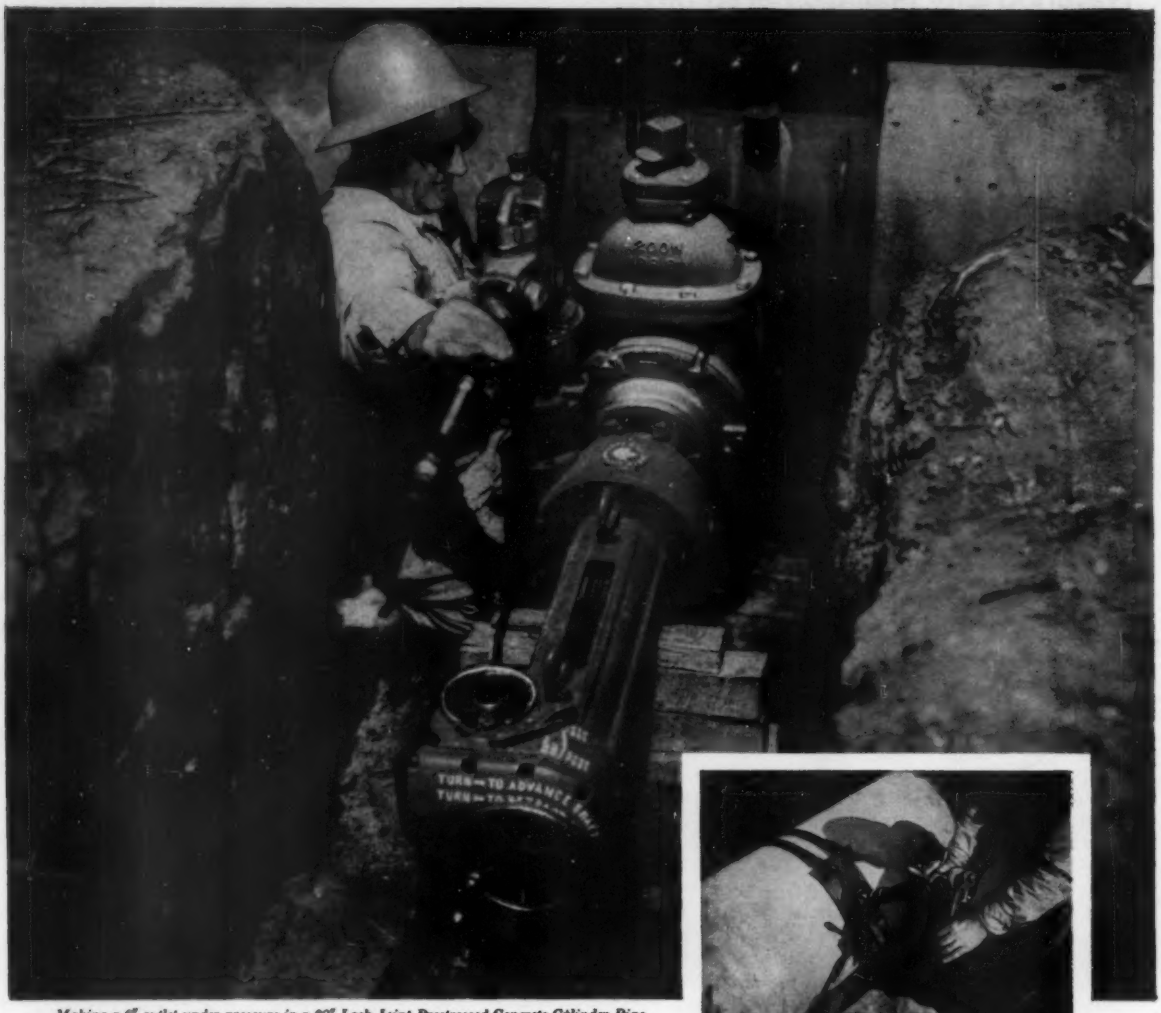
Established in 1957, the Sears-Roebuck Foundation program calls for the awarding of five two-year graduate fellowships each year.

Named as the 1959 winners of two-year graduate fellowships are:

- **Michael P. Brooks, a senior at Colgate University, to attend Harvard University;**
- **Walter E. Sagadencky, planner on the staff of the Metropolitan Area Planning Commission of Pulaski County, Ark., to attend Yale University;**
- **Jerry B. Schneider, of Oak Harbor, Wash., to attend the University of North Carolina;**
- **Edward W. Wood, graduate student of landscape architecture at the University of Massachusetts, to attend Massachusetts Institute of Technology;**
- **Paul C. Zucker, land planner for the Bucks County, Pa. Planning Commission, to attend the University of California.**

Of the first group of 1957 Foundation fellows, all graduating this spring, one has accepted a Fulbright scholarship to continue advanced city planning training at the Technical University of Delft in the Netherlands while a second will work toward a doctorate in city planning at the University of Pennsylvania.

A third has accepted a position with a planning consulting firm in West Trenton, New Jersey.



Making a 6" outlet under pressure in a 20" Lock Joint Prestressed Concrete Cylinder Pipe.

Tapping a 1" house connection under pressure in Lock Joint Concrete Pressure Pipe.

TAPPING LOCK JOINT CONCRETE PRESSURE PIPE

Simple...Efficient...Time-tested

Thousands of field installations have proved the ease and efficiency with which LOCK JOINT CONCRETE PRESSURE PIPE can be tapped under pressure. Service connections as well as larger outlets up to 36" in diameter can be made without interruption of service or damage to the line.

In addition to safe, easy tapping of all diameters, LOCK JOINT CONCRETE PRESSURE PIPE also combines long life, dependability, permanent high carrying capacity, ease of installation, and negligible maintenance. These features make it the logical choice for distribution piping as well as water transmission lines.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

There is no trouble at all in keeping curb edges trim and neat with this mechanical cutter.

An Easy Way to Trim Curbs

There is an easy way, says P. J. Swett, Parkway Maintenance Supervisor of the Parkway and Park Commission, New Orleans, to keep street curbs trim and neat. And there also is a hard way. The easy way is to trim the curb with a tractor-attached K-D Kurb Dresser, made by K-D Mfg. Co., Cleburne, Texas. He estimates that this mechanical grass edger saves the city $6,000 annually while releasing manpower for other work. It automatically locates the curb edge and holds a straight course even when the tractor path deviates as much as 16 inches.

Mr. Swett's department is responsible for maintaining 225 miles of curb where grass must be edged at least six times each year. He has found that the Kurb Dresser is able to do the entire job 20 times faster than any other curb-dressing tool ever used.

Par-3 Golf Courses

The increasing popularity of par-3 golf courses is another indication of the way that recreational facilities are adjusting to more densely occupied urban areas. A study by the National Golf Foundation, 407 South Dearborn Street, Chicago, shows that 9-hole municipally-run par-3 golf courses have been in operation for about 12 years as an average. They have somewhat less than 1,000 yards of play and cover an average of 12 acres. Their cost can vary from $3,000 to $90,000; their average maintenance costs run less than $15,000 per year, and the play on them will average a little less than 18,000 rounds of golf per year.

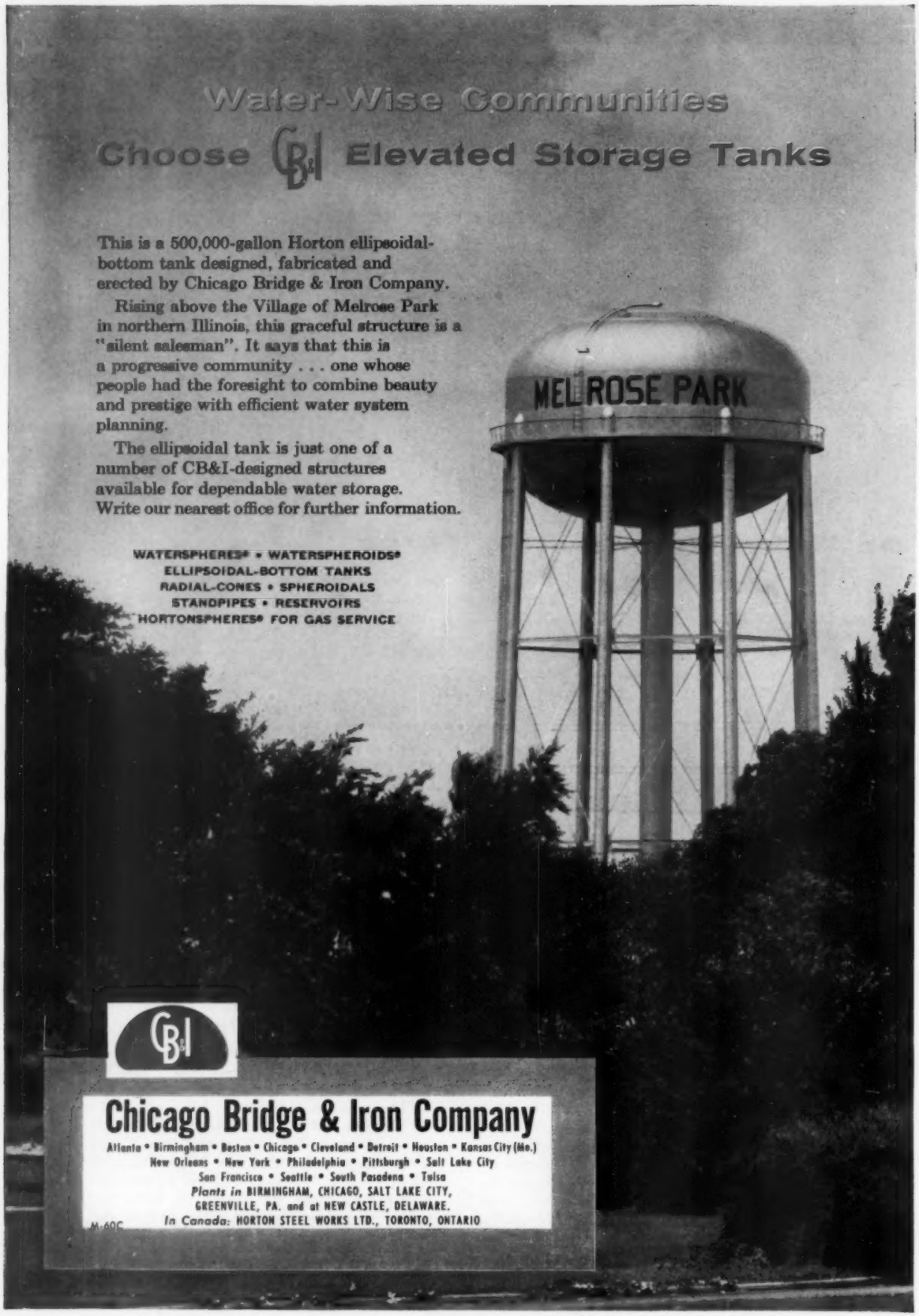
There are a few 18-hole municipal par-3 golf courses. These generally average somewhat over 1,700 yards in length and 15 acres in size. Fees vary from 60c to 75c for the 9-hole courses and roughly double this for the 18-hole.

Insecticide Sprayer Also "Greens" the Grass

Mosquito chasing isn't the only task that the Milwaukee County Park Commission gives to its mist sprayer. Park crews have used the same equipment on a limited experimental basis to "paint" browned-out grass areas with green vegetable dyes during the dry periods of late August. The "painting" took place on the grassed areas within the Milwaukee County Stadium.

The equipment also has been used for foliar fertilizer feeding although results have as yet been inconclusive and for summer spraying of shade trees.

The major task, however, has been that of freeing the beaches, outdoor concert areas, picnic grounds and golf courses of flies and mosquitoes. Crews take the spray equipment out in the early afternoon at about 8- to 10-day intervals. Areas where evening programs take place are resprayed prior to the event unless they have been treated within the previous seven days. The rate of insecticide application is three pounds of 50% wettable DDT per 100 gallons of water. This will cover approximately five acres with a mist sprayer.


Water-Wise Communities
Choose CB&I Elevated Storage Tanks
This is a 500,000-gallon Horton ellipsoidal-bottom tank designed, fabricated and erected by Chicago Bridge & Iron Company.
Rising above the Village of Melrose Park in northern Illinois, this graceful structure is a "silent salesman". It says that this is a progressive community . . . one whose people had the foresight to combine beauty and prestige with efficient water system planning.
The ellipsoidal tank is just one of a number of CB&I-designed structures available for dependable water storage. Write our nearest office for further information.
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WATER SUPPLY AND TREATMENT

Water Line Survives Serious Washout

Fast moving water gouged out large areas in the well field. Bottom of steps indicates the normal ground level. The washed-out line is at the left.

During a five-inch rainfall last January 21, the Mad River lived up to its name by overflowing its banks in the vicinity of the Dayton, Ohio, well field. The ensuing washout cut across the well field, washed out much-traveled Harshman Road and then cut through a 15-foot-high levee that runs along a large gravel pit.

The force of the water carried away five feet of gravel-laden earth covering a 72-inch waterline running along the base of the levee. The line, made up of Price reinforced concrete pressure pipe, was installed in 1951 to carry raw water from the numerous wells in the area to a larger concrete line that runs to the treatment plant. Twenty sections of pipe —or about 320 feet of the line—was exposed, and where the washout was strongest, it carried away the ground under the pipe, leaving four 16-foot sections suspended in the fast-moving water. These four sections of pipe weigh a total of 68 tons, not counting the weight of the water inside.

Emergency crews worked around the clock to build a sand bag barricade along Harshman Road and check the flow of water in the washout.

On February 4th, water department employees drained the line in order to inspect it from the inside. This inspection revealed only two joints in the entire section of pipe in need of pointing up. Otherwise the pipe remained as good as new. The line was again drained on February 10th and the two joints pointed up. It was subsequently re-covered and placed back in service. Fortunately, the steel bell and spigot joints and the mortar grouting withstood the effects of excessive weight of the water-filled pipe and the lateral deflection caused by the rapid flow of water.

Bulldozers and a dragline start moving earth to recover exposed line. Water washed away 350 ft. of the 15-foot levee in the background.

W. T. EIFFERT
Director of Water and Wastes
Dayton, Ohio

"Here the Meter Is"

Not every water supply customer is as willing to cooperate as a rather bewildered old gentleman who appeared at the counter to pay his bill in Ellensburg, Wash.

He presented his bill and complained mildly that he thought it to be too high. The clerk examined the bill, agreed that it looked out of line, and suggested that the water meter be checked for accuracy.

"Here it is," the customer told him, and smilingly pulled the meter out of a bag and laid it on the counter.

Rather than test the meter, the city sent an inspector to the household where he quickly discovered the trouble. In any case, as City Manager Benjamin H. Mead points out, no meter suddenly starts running fast. All that it possibly can do is slow down.

John Bean's Spot In Lansing's 100th Anniversary

On May 23, Lansing staged the biggest parade in Michigan's history. John Bean Division's spot in the five-hour-long spectacle was occupied by this girl-adorned fire truck. Riding on the seat back is Della Powell, Engineering Department secretary, who was recently elected Miss 75th Anniversary by John Bean office employees. In the parade, the "farmerettes" perched on the running boards drove an orchard Speed Sprayer and a Rotomist shade tree sprayer.

The high pressure Fire Fighter, built on an International open cab chassis, was recently completed for Haledon, N. J.

Strong argument for fire and police integration if the police can match it.

More Action And Fewer Hours For St. Louis Police

An improvement program being carried out by the St. Louis Police Department attempts to meet the city's crime problem through more efficient utilization of the police manpower now authorized by state law. This requires additional expenditures for training and equipment, but it is less costly than the sizable increase in the number of policemen (2010).

The St. Louis Governmental Research Institute, 1016 Arcade Building, conducted an intensive study in 1957 to determine how the department could distribute its patrol force most effectively. This study was based in large part on analyses of thousands of police reports covering a year's operations. The analyses determined those hours of the day when policemen are most needed and those areas of the city which require the greatest amount of police service.

As a result of its study, the Institute in January 1958 recommended a major reorganization of patrol procedures and a major redistribution of patrol manpower among the city's 12 police districts.

More than 40% of all crime in St. Louis occurs between 5 p.m. and 1 a.m. Until 1957, the department was required by law to divide its manpower equally among the three eight-hour "watches" comprising the work day and could not distribute manpower to meet the peak load of criminal activity. As amended by the last Legislature, the law permits the department to determine when its manpower will be used.

Motorized Patrol Increased 454%

The Institute recommended changing the emphasis from foot to motorized patrol and the use of one-man patrol cars which provide better, faster coverage.

During the hours when crime is most likely to occur, 176 patrol cars are now in action throughout the city, in addition to the 40 cars used by supervising sergeants. In contrast, motorized patrol coverage three years ago consisted of only 39 cars, each of which was assigned to a sergeant and his driver.

The improved patrol procedures have made it possible to reduce the work week for policemen. To have shortened the work week without changing patrol procedures would have cost about $940,000 annually for the salaries of additional police.

In October, 1958, four policemen trained by dog specialists in London, England, began patrolling St. Louis on foot and in cars with their specially trained German shepherd dogs. Already their performance indicates that this new patrol combination will be a valuable tool in police work.

The two-wheeled motorcycle, traditional equipment for the traffic officer, has almost disappeared from the St. Louis scene. Only 12 are now owned by the department, compared with 83 at the beginning of 1958. Traffic officers checking for parking meter and other violations use three-wheeled motorcycles. Their downtown patrol patterns have been carefully laid out and their work performance standards have been substantially increased. As a result, the 10,000 M. H. Rhodes Co. Mark-Time parking meters are being checked more often by fewer traffic officers. More traffic tickets are being issued.

Expanded patrol operations required a sizable increase in the number of radio-equipped vehicles. This in turn required an expansion of radio facilities. Recently, two additional radio communication channels were approved by the FCC for department use. The added facilities provide relief for a radio system so overtaxed that policemen in patrol vehicles were often delayed for long periods in contacting the radio dispatcher at headquarters.

In the past, many police vehicles have been used only eight hours daily. The inadequate utilization of automotive equipment has required the purchase and maintenance of more automobiles than would otherwise be necessary.

A departmental motor pool was established in November 1958. Hereafter, it should be unnecessary to maintain as large an automotive fleet for purposes other than 24-hour patrol.

Mayor Florimand J. Bergeron and Fire Chief J. Leo Rivard of Willimantic, Conn., discuss operation of the city's completely automatic Gamewell Fire Alarm System. The mayor, an ex-fire commissioner, is a key influence in progressive fire protection measures.

Their city gears fire protection to growth...

"We add fire alarm boxes and related equipment as fast as city growth demands and the budget permits."

These words by Mayor Florimand J. Bergeron of Willimantic, Conn., exemplify the city's forward-thinking attitude on fire protection. Guarded by Gamewell "Pull" Fire Alarm Boxes since 1887, this modern community of 18,000 has consistently expanded the system. Since 1954 alone, 22 new boxes have been added.

Willimantic city officials feel that the Gamewell System has thoroughly proved itself, both in action and in comparison with other types of fire alarm systems. When major replacements became necessary in 1954, a broad and intensive study of these other types was made. Unanimous decision of the mayor, his fire chief, and the board of fire commissioners was that no other system equalled Gamewell for dependability, efficiency, and economy.

Willimantic now has 90 boxes, including street boxes and those in schools, hospitals, industrial plants, old age homes and supermarkets. An alarm "pulled" from any one is *automatically* transmitted to *all* fire personnel: by direct lines to fire station and fire officers' homes; by means of an air horn to volunteer firemen. No one has to speak a word!

Has *your* community fire alarm protection as positive and as economical as that of Willimantic? Be certain. Let a Gamewell Survey answer this vital question without any obligation. Write THE GAMEWELL COMPANY, 3C Newton Upper Falls 64, Mass.

Gamewell

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PAYLOADER® and its attachments work for you the whole year through

When you invest in a "PAYLOADER", you get *more* than a tractor-shovel . . . you have a potential *fleet* of construction and maintenance equipment to handle, not only the regular tractor-shovel jobs, but scores of specialized jobs normally requiring single-purpose machines.

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A "PAYLOADER" can be equipped with a greater variety of proven attachments than any other tractor-shovel, each tool specifically and exclusively engineered for the "PAYLOADER" applications. They are easily and quickly installed and many permit the use of the bucket in conjunction with the attachment. Only a "PAYLOADER" offers you this maximum versatility, productivity and economy.

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With one basic machine that does scores of different jobs, you eliminate the big investment in various single-purpose machines. A "PAYLOADER" will handle these specialized jobs equally well, and then can be quickly converted back into a shovel or to another useful attachment. And you can keep your "PAYLOADER" busy more days in the year.

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For snow fighting alone, there are several attachments from which to choose: regular or special-large snow buckets; self-powered rotary plow; powerful drift-busting "V" plow; "one-way" and reversible blade plows.

Four-In-One Bucket

A "PAYLOADER" equipped with a patented Drott 4-in-1 bucket has no end of uses for public works, because it can function as a shovel, bulldozer, clamshell or self-loading scraper. This special bucket is available only on a "PAYLOADER" in the rubber-tired field.

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Some of the many other "PAYLOADER" attachments of special interest to public works departments include the back-hoe, the pick-up sweeper, a high-capacity leaf loader, a blacktop spreader, a side-boom, and a vibratory compactor.

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710 Sunnyside Ave., Libertyville, Ill.

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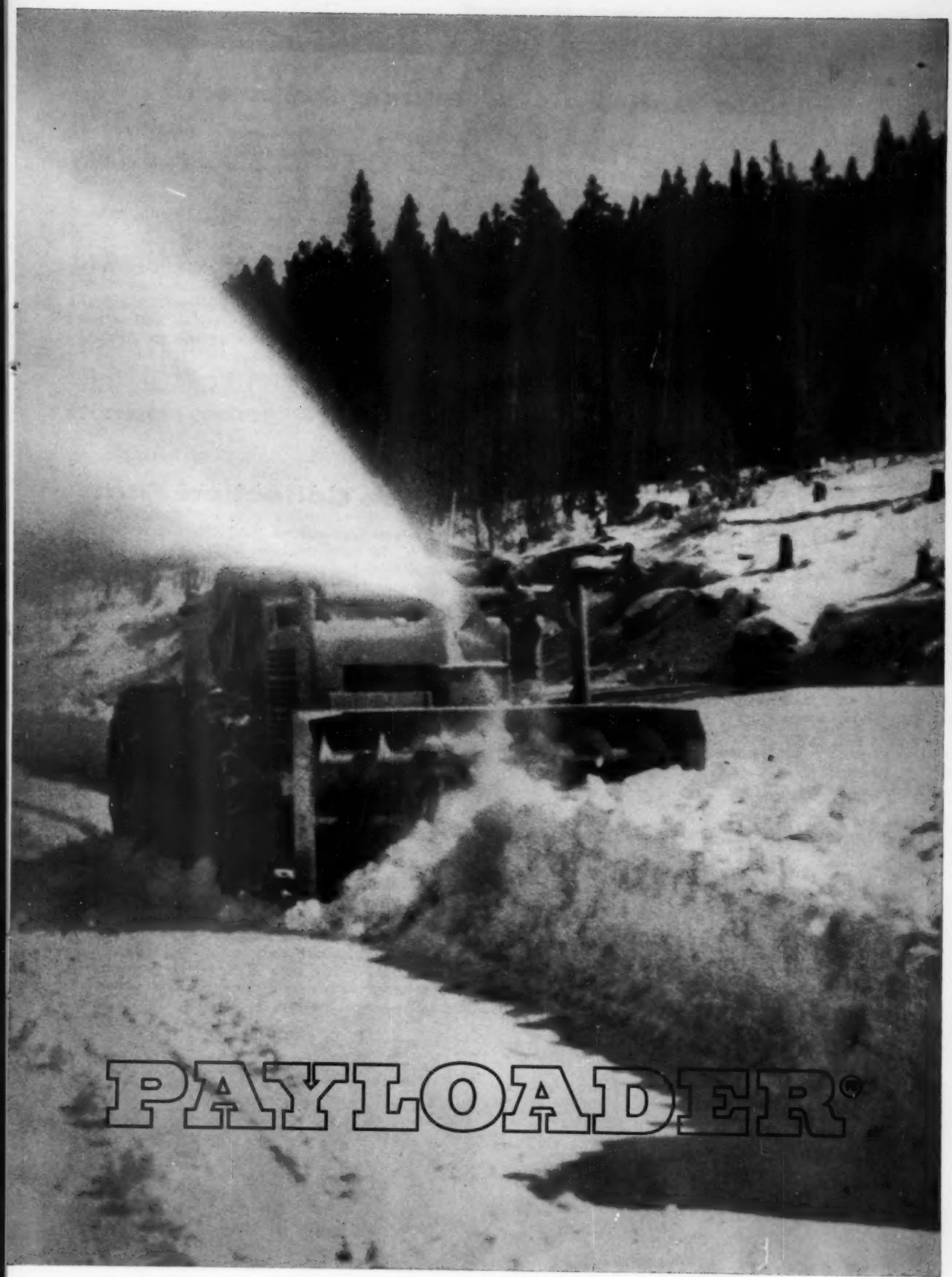
PAYLOADER®

A Workable Solution to Refuse Disposal

Although based on the local point of view, the recommendations of the Refuse Disposal Study Committee sponsored by the University of Pittsburgh, Institute of Local Government, suggests a solution to the refuse disposal problem which is applicable to other urban county areas. The study deals specifically with Allegheny County, Pa., comprising 129 boroughs, cities, and townships. The recommendations are based on the Committee's belief that the problem of refuse disposal cannot be resolved adequately by the several political subdivisions acting independently of one another.

Among the Committee's primary recommendations are the following:

1. That the county assume responsibility for providing refuse disposal facilities for municipalities and private contract haulers and have exclusive jurisdiction over these facilities.

2. That collection remain the responsibility of each borough, city, and township.

3. That all acceptable methods of disposal be used rather than a single system and that they be designed to dispose of all solid wastes.

4. That existing facilities determined as suitable for inclusion in the county system be purchased, that those deemed unsuitable be closed immediately, and those deemed suitable but not included in the county plan be certified and allowed to operate for a period not to exceed five years from date of certification.

5. That capital investments of the system be financed from general county taxation and operating costs be financed from uniform fees assessed against the municipality or private haulers.

Additional recommendations dealt with regulation of collection vehicles, operating standards, selection and acquisition of disposal sites and establishment of an appropriate department responsible to the Board of Commissioners for the operation of the system. The recommendations also include safeguards to the numerous political subdivisions with reference to truck routes, protection of property and similar items.

Committee Membership

The Institute's Refuse Disposal Study Committee consists of 18 local government officials and three members of the Institute staff. It represents the geographical areas of Allegheny County as well as the three classes of political subdivisions. Of the 18 local officials on the 21-man committee, 11 are either elected councilmen, commissioners, supervisors, or burgesses, while seven are appointed officers, managers, solicitors, or engineers.

Refuse Collection Film

A 15-minute film entitled "The New Era of Refuse Collection" is now available on a loan basis for interested municipal planning or study groups. Filmed in full color, the new production traces the history of refuse collection and points up many present-day problems with animated cartoon sequences and a musical score. Solutions to various problems of municipal wastes disposal were filmed on location in well-known cities.

Featured in the film is the Dempster-Dumpmaster self-loading packer. Interested groups may secure a print by writing Department F-1, Dempster Brothers, Knoxville 17, Tenn., giving the date that the film is wanted for showing.

One Unit Clears Landfill Site and Works It

When East Pennsboro Township, Pa., selected a 25-acre area near the west shore of the Susquehanna River for disposal of the 2,000 cubic yards of garbage and rubbish contributed weekly by its 8,500 residents, it had the problem of clearing it first.

The township solved all problems with an International Drott TD-15 4-in-1 unit. The machine was put to work clearing trees and bush from a wooded portion of the site which bordered a ravine to be filled and developed into a park. The 4-in-1 then ripped shale material with a rear-mounted Drott scarifier, stockpiling cover material for the sanitary-landfill.

AT YOUR FINGER TIPS

Every key point in your water system —with FEMCO telemetering . . . monitoring . . . remote control

Femco Centralized Monitoring and Control systems "report" meter readings, valve positions, pump conditions, etc. from any point in your water system to your central control station, and enable you to control every operating function from that station.

With this Femco system, any number of monitoring, telemetering and control functions, in any combination, are handled through a single two-wire parallel circuit. Leased telephone wires may be used if desired.

The system is extremely flexible. Applications range from indication and control of a few functions within a single filtration plant to centralized operation of a complete water system covering several hundred square miles. Each application is engineered for the specific job which is required, but the use of standardized components keeps costs low in relation to the savings produced.

All Femco systems are rugged and dependable. Maintenance can be handled by regular employees—no electronics technicians are needed. For more information, just fill out and mail the coupon below to Femco, Inc., Irwin, Pa.

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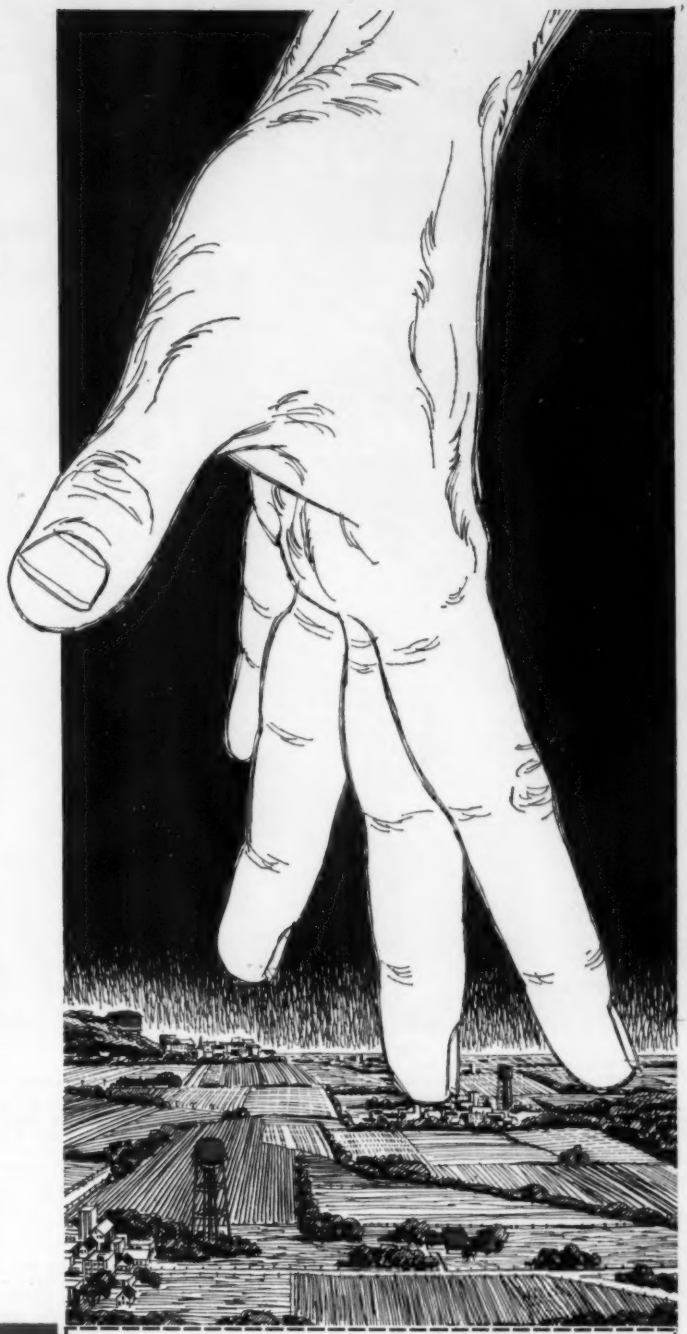

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COMMUNICATIONS: Carrier and wired audio systems. **TELEMETERING:** Flows, pressures and other functions. **MONITORING:** Circuit breakers, valves, pumps, compressors, etc. **REMOTE CONTROL:** Pumps, valves, circuit breakers; cranes, or other moving equipment.

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By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given or use the Post Card on page 53.

Line Your Water Mains with Plastic

100 Applicable for all piping — metal, concrete, tile—this tough, durable resin exhibits excellent adhesive characteristics, has outstanding resistance to water erosion, impact, cavitation and abrasion. It is easily applied by brush, spray or pig and sets quickly, and can reduce maintenance costs and enable you to supply a higher purity water. For details on Epon 1001, write SHELL CHEMICAL CORP., PLASTICS AND RESINS DIV., 50 WEST 50TH ST., NEW YORK 20, N. Y.

Super Size, Detachable Refuse Containers

101 Simple, powerful, one-man operated, the Dempster-Dinosaur automatically picks up, hauls, dumps, sets down loads. Whether engaged in refuse or scrap collection, materials handling or numerous other operations, this detachable container system demonstrates its competence and pertinence. For illustrated brochure, giving details, write DEMPSTER BROTHERS, DEPT. AC-8, KNOXVILLE 17, TENN.

Power for Municipal Operations

102 Detailed information in bulletin form is available from WAUKESHA MOTOR CO., WAUKESHA, WIS., on its complete line of heavy-duty gas, gasoline and diesel engines, designed for efficient operation and reliable service, and applicable for numerous municipal operations.

How to Obtain a Better Water System

103 Written for water utility managers, engineers and public officials, this 84-page book, entitled "Priceless Water," shows (1) the benefits of good water service to a community; (2) how to evaluate your water system; (3) how to turn that evaluation into improved service, and (4) how to arouse the public to action. For a copy, write JOHNS-MANVILLE, BOX 14, DEPT. AC-7, NEW YORK 16, N. Y.

Clamps, Couplings, Saddles and Adapters for Pipe

104 Product sizes, details, material specifications, and the net prices of approximately 50 different products for fitting the outside diameter of pipe are included in the new, 44-page "Net Price Book" published by SMITH-BLAIR, INC., 535 RAILROAD AVE., SOUTH SAN FRANCISCO, CALIF., which also covers all phases of repairing, coupling and tapping pipelines.

Upgrades Efficiency of Sewage Purification

105 The Flotator-Clarifier described in *Bulletin* SM-1008 is designed to remove low specific gravity solids by a combination of dissolved air flotation and conventional sedimentation in a single tank, more quickly and in less space. It is one product in a complete line of up-to-date, well-engineered sewage treatment equipment available from THE EIMCO CORP., SALT LAKE CITY, UTAH.

Something New in Vacuum Filters

106 These vacuum filters provide complete cake discharge every filter cycle (with no binding) and maintain a constantly clean filter medium at all times. When they are used, no air blow is needed, there is no filtrate blowback, and less chemical reagents are required. For descriptive literature on Rotobelt filters for sludge dewatering, write PROCESS ENGINEERS, INC., 420 PENINSULA AVE., SAN MATEO, CALIF.

Municipal Uniform Fabrics

107 When you specify Chevron-4 for municipal police and fire department uniforms, you specify a fabric that meets requirements for both quality and economy. This wash-and-wear fabric is lightweight, yet warm; it is durable, yet comfortable and pliable, and it resists shrinkage, fading and tearing. For details, write MOUNT VERNON MILLS, INC., BALTIMORE 2, MD.

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108 Two new cranes, introduced in literature from AUSTIN-WESTERN CONSTRUCTION MACHINERY DIVISION, BALDWIN-LIMA-HAMILTON, AURORA, ILL., offer a high degree of maneuverability, easy maintenance, economy of operation, high production and mobility. Both Model 410 (10-ton capacity range) and Model 110 (3-5 ton capacity range) are available with a wide range of accessories for added versatility.

Control Systems for Water Works

109 *Bulletin* No. 5903 describes an extremely flexible and dependable centralized monitoring and control system that enables you to control every operating function in your water system from a central station. For a copy, write FEMCO, INC., IRWIN, PA.

Easy Way to Repair Concrete

110 Concrete tanks, reservoirs, sea walls, sewers, bridges, filter plants, and other concrete structures can be renewed economically and permanently with Gunite. For details, request literature from INDIANA GUNITE CONSTRUCTION CO., INC., 226 N. ALABAMA ST., INDIANAPOLIS, IND.

Radar Traffic Control

111 Simple, compact, and with plug-in portability, Patrolmaster Radar Model 500 picks up speeders in congested city traffic or on the open road with sureness. Its pick-up antenna can be aimed like a spotlight, and it is equipped with adjustable land and range switch. For descriptive literature, write MONUMENT ENGINEERING CO., INC., GENERAL ELECTRONICS DIV., 1625 BELLEFONTAINE ST., INDIANAPOLIS 2, IND.

High-Frequency Vibrating Compactor

112 Self-propelled, maneuverable and portable, the VR-28-W produces compaction equivalent to an 8-ton roller on asphalt. In Garden Grove, Calif. this 28" compactor has decreased costs 80% and tripled street maintenance production. For descriptive literature on this and eight other models, write ESSICK MFG. CO., 1950 SANTA FE AVE., LOS ANGELES 21, CALIF.

Water Control Equipment

113 Sparling bulletins cover a complete line of water measurement and recording instruments, with special emphasis on propeller meters and their construction. For copies, write SPARLING METER CO., 239 N. TEMPLE CITY BLVD., EL MONTE, CALIF.

Power Generators

114 Low- and high-speed generators in ratings from 10 to 10,000 kw, designed and engineered to meet exacting requirements and to deliver dependable power performance, are thoroughly discussed in literature available from IDEAL ELECTRIC & MANUFACTURING CO., 301 E. FIRST ST., MANSFIELD, OHIO.

Swim In Drinking Water

115 . . . is the title of a highly informative 49-page booklet which (1) discusses chlorination for the modern swimming pool, (2) presents and describes swimming pool equipment — chlorinators, chemical feeders, control and testing instruments; and (3) includes "Recommended Practice for Design, Equipment and Operation of Swimming Pools and Other Public Places," an official report of The American Public Health Association. For a copy, write WALLACE & TIERNAN, INC., 25 MAIN ST., BELLEVILLE 9, N. J.

Fibre Pipe for Drainage, Sewer and Septic Systems

116 In 28 pages *Bulletin* No. 56040 tells the story of Permaline bituminous fibre pipe, bringing up to date information on its development, characteristics, applications, installation, and fittings available. For a copy, write LINE MATERIAL INDUSTRIES, 700 W. MICHIGAN ST., MILWAUKEE 1, WIS.

"Garbage-Free" Community Plan

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Municipal Signs and Markers

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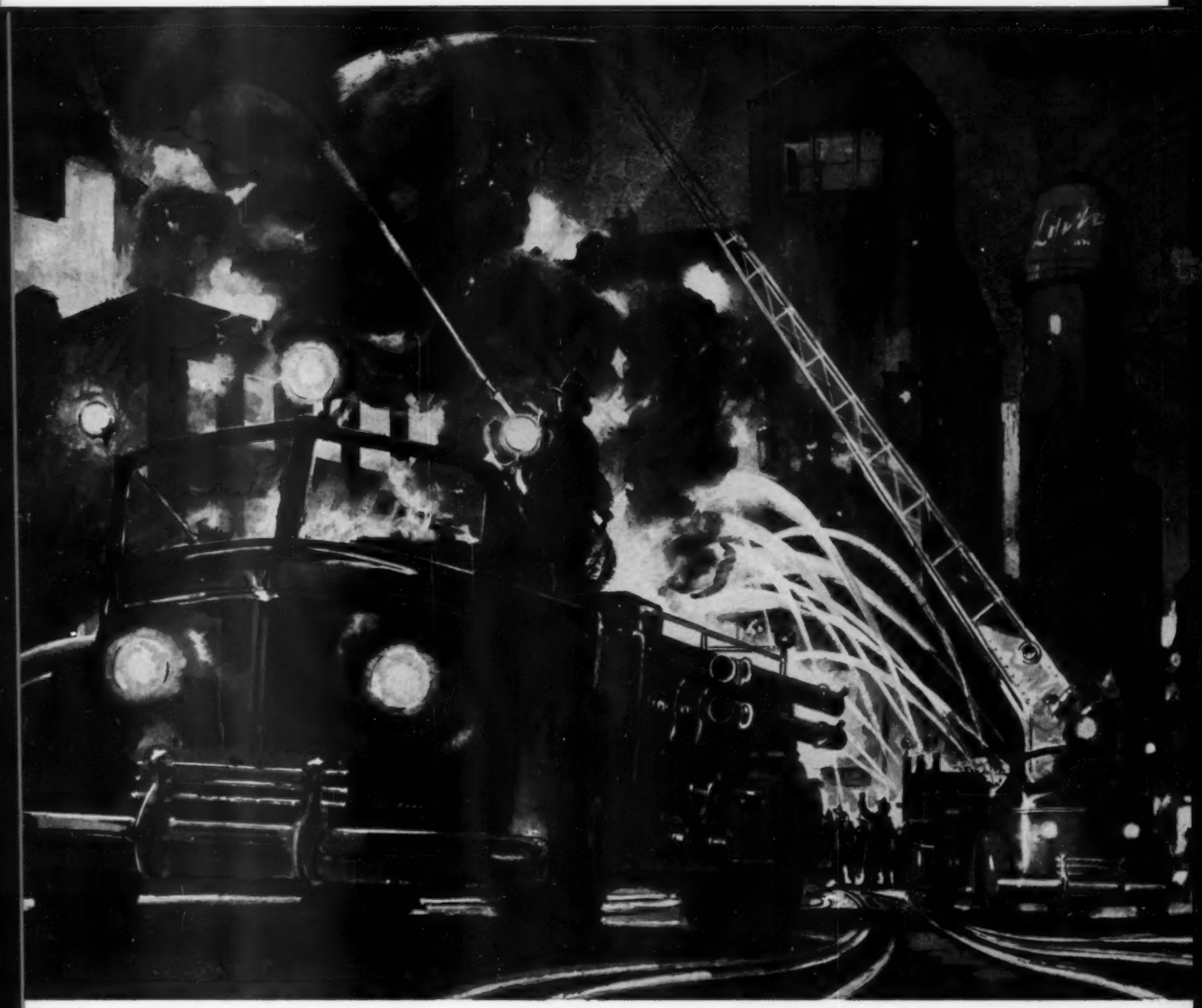
(See page 38 for more Bulletins)



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New IH hydraulic bull-grader—angled, tilted, lifted, and lowered hydraulically from the tractor seat.

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5 speeds reverse . . . 5 speeds forward with Fast Reverser for faster cycles on shuttle-type work. Go *22½ per cent faster* in reverse than in corresponding forward gear. Or . . .

10 speeds forward with exclusive IH Torque Amplifier drive. Boost pull- or-push-power on-the-go in any gear without shifting.

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New International Drott T-340 Four-In-One Skid-Shovel—combines in one machine a bulldozer, clamshell, carry-type scraper, and ¾ cu yd bucket (⅞ cu yd heaped), all hydraulically controlled.

New International Wagner backhoe and loader—can be mounted separately or in combination. Self-leveling loader has 3,500-lb capacity.

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BRAND NEW Barricade Flash!

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- **Transistor type, heavy duty for long, dependable life.**
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TRANSISTA FLASH produces approximately 2000 hours of continuous flashing from two standard 6-volt batteries, available anywhere. Provided with a concealed, tamperproof switch operated from outside of case. Equipped with bracket for attaching to barricade. Lens or Fresnel supplied in either amber or red plastic—specify color. Flash frequency is approximately 72 times per minute. Lamp is finished in yellow baked enamel.

Model 410T

No. 433 Barricade—All metal, strong, stable on any surface. Has angle iron construction, closed ends.

Model 418T—with dome type Fresnel.

Model 417T—7 inch head. Otherwise, same as Model 410T.

8380

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CATALOGS *for Improved Municipal Services*

Write directly to the address given or use the Post Card on page 53.

Sprinkler Head Valves for Park Irrigation

120 If your job is keeping municipal turf areas green, you will be interested in the several models of sprinkler heads discussed in a leaflet from RAINY SPRINKLER SALES, 609 W. LAKE, PEORIA, ILL. They're designed to assure slow, uniform coverage with long, low throw that gives maximum coverage at low pressures.

Nonclogging Grates for Street Catchbasins

121 Self-maintaining, lightweight, economical and safe, these steel mesh drain-grates are 75% open to permit greater drainage and are not subject to cracking. They are available in three basic designs: Riveted; Pressure-Locked; RI-6. For details, request the brochure on "Dryway" Draingrates from IRVING SUBWAY GRATING CO., INC., 5030 27TH ST., LONG ISLAND CITY 1, N. Y.

Playground Equipment

122 Safe, sturdy, easily-maintained playground equipment that includes such standards as swings, portable and stationary slides and merry-go-rounds are listed and illustrated in the latest catalog of RECREATION EQUIPMENT CORP., DEPT. MP, 742 W. EIGHTH ST., ANDERSON, IND. For information on swimming pool equipment, write DEPT. MS.

Improved Excavating-Materials Handling Machine

123 *Bulletin* No. 1094, which discusses the Panther Power Digger and its new loader attachment, points out the construction and operation features that enable this maneuverable excavating-materials handling unit to turn in top performance when on the job. For a copy, write SHERMAN PRODUCTS, INC., 3200 W. 14 MILE RD., ROYAL OAK, MICH.

Ice Control Data

124 Facts on ice control are readily available to interested municipal officials sending requests to SOLVAY PROCESS DIVISION, ALLIED CHEMICAL, 61 BROADWAY, NEW YORK 6, N. Y., suppliers of calcium chloride and calcium chloride salt mixtures for effective and economical treatment of winter pavements.

Pipe Locator and Leak Detector

125 Model LC-5T is an effective and useful multipurpose instrument designed to pin-point pipes, cables, mains and laterals and detect water leaks. For details on the lighter, more sensitive and new transistorized "Dualtronic," write THE GOLDAK CO., INC., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF.

Traffic Control Aids

126 THE MARBELITE CO., INC., 170 NORTH 10TH ST., BROOKLYN 11, N. Y., manufacturers of traffic controls, has introduced three additions to its line: the TC-19290 wide angle lens expander; DWW "DON'T WALK" signals, and the "L" series of 12" signals, which can be nested with 8" signals. Insert Sheets F-19, F-17 and F-15, respectively, discuss each traffic aid.

(See page 40 for more Bulletins)

THE MOST ECONOMICAL BULK REFUSE COLLECTION SYSTEM YOU CAN BUY!

NEW

SIZES 1 to 6 Cubic Yards in

ROTO-CAN

The moment you see this new Roto-Pac-Roto-Can system in action you'll see where the savings begin. First of all, it is not a big ticket system. Your new Roto-Pac truck can be fitted for Roto-Can service at a minimum investment. Or your old Roto-Pac units can be adapted—likewise at a minimum investment. Secondly, your operating costs will be lower. The Roto-Can system is a one-man operation. The operator merely hooks up the Roto-Can to the Roto-Pac truck and stands safely to one side as the can is gently tilted into the hopper. It is fast!

What's more, your Roto-Pac truck, when not on container service, can be used, just as it is, for manually dumped pick-ups. That's dual purpose! And at that, it is still the fastest, most efficient refuse collection truck on the market.

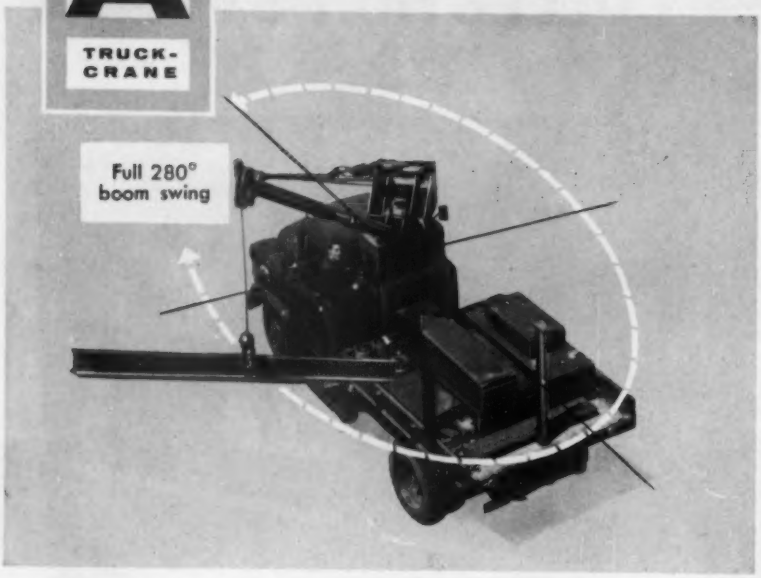
But don't take our word for it. Write for brochure and ask about a demonstration—today.

CITY TANK CORP.
53-09 97th PLACE • CORONA, N. Y.

ANTHONY

TRUCK-CRANE

the quality leader in Truck-Cranes



The Crane that's built into your truck!

Take your crane with you *right along with the load!* Why tie up another specialized rig when the Anthony Truck-Crane does it better . . . travels with your truck. Lift 2½ times as much as most end loaders! Make your truck self-loading – and self-unloading. Do many jobs formerly done by larger, more expensive cranes – and do them better. Tell your Anthony distributor you're ready for that demonstration . . . now! Anthony Company, Streator, Illinois.

HYDRAULICALLY PROJECTED BOOM FOR ACCURATE SPOT LOADING

Unmatched compactness—requires only 18" mounting space • 100% hydraulic operation—for smooth, effortless power • Full 280° boom swing for flexibility • Choice of booms.

ANTHONY

DUMP BODIES AND HOISTS

DUMP TRAILERS

LIFT GATE

TRUCK-CRANE

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Fire Protection Equipment

127 You can now give your municipality full fire protection that is also economical, and you can gear it to community growth and needs. To learn how, write GAMEWELL COMPANY, 3C NEWTON UPPER FALLS 64, MASS., manufacturers of fire alarm boxes and related equipment and systems for positive protection against fires.

Removes Leaves and Litter

128 Wet or dry leaves and litter are sucked up quickly and economically by this Leaf Loader. Trailer mounted, it is easily hitched to any truck, and provides automatic pickup of leaves in a 30-inch path. For complete story, write GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

New, Compact Utility Tractor

129 Fast, agile and full-powered, the Oliver 550 wheel tractor with new backhoe and loader proves itself an able, work-saving rig just right for numerous municipal, utility, water and sewer department jobs. For full details, write THE OLIVER CORP., INDUSTRIAL DIV., 19300 EUCLID AVE., CLEVELAND 17, OHIO.

Safe Playground Equipment

130 Climb-Around affords versatile climbing fun. It has no sharp corners, no rough edges and is sturdily built and weather resistant. Available in several sizes, it is but one item in a complete line of playground equipment available from J. E. BURKE CO., DEPT. G, FOND DU LAC, WIS.

Aluminum Stop Plates and Slide Gates

131 Descriptive literature on strong, durable, noncorrosive stop plates, slide gates and guides for water and sewage treatment plants can be obtained by writing to WASHINGTON ALUMINUM CO., INC., DEPT. 87, BALTIMORE 29, MD.

Asphalt Distributor

132 *Catalog* No. RS1256 gives full information on Model 424-56, a new pressure distributor that has been field-tested for two years on every type and grade of asphalt. Built in 1000-, 1250-, and 1500-gallon capacities, it incorporates many features that contribute to its ease of operation and control. For a copy of the catalog, write STANDARD STEEL WORKS, INC., NORTH KANSAS CITY, MO.

Speed Turf and Grounds Upkeep

133 *Bulletin* S-237 discusses a complete line of air-cooled engines from 3 to 56 hp, designed to start fast, work steadily, and speed work, whether powering equipment for maintaining turf or grounds. For a copy, write WISCONSIN MOTOR CORP., MILWAUKEE 46, WIS.

Steel Pipe Booklet

134 Although called "The Ductility and Adaptability of Steel Pipe," the 8-page brochure published by the STEEL PLATE FABRICATORS ASSOCIATION, 105 W. MADISON ST., CHICAGO 2, ILL., gives other pertinent facts about steel pipe and points out how it meets the seven essential requirements for a water pipeline.

(See page 45 for more Bulletins)

You can't miss!

There's Visibility Unlimited in

ROCKWELL

Sealed Register

METERS

You can't miss getting a quick, accurate reading from any Rockwell Sealed Register meter. A row of bold figures look you straight in the eye through a window that never becomes dirty or fogged. In fact you can even run this meter under water. That's because the register and all the reduction gears are *hermetically sealed* to stay clean, dry and free of condensation.

With Rockwell Sealed Register meters you'll never again be called upon to service leaky or bound stuffing boxes *for there are none.* A powerful magnetic drive couples the measuring chamber to the register without mechanical linkage or seals. And in this revolutionary meter there are only two moving parts operating in water. Truly, the Rockwell Sealed Register meter is the least vulnerable to wear or corrosion—the smoothest running and most accurate. Write for catalog. Rockwell Manufacturing Co., Pittsburgh 8, Pa.

Now available in both 5/8" and full 3/4" sizes

SEALED REGISTER METERS

another fine product by

ROCKWELL

Here's why the low-cost Bucyrus-Erie 11-B

is productive more of the time!

There are more time- and money-saving features on this high-speed mobile crane-excavator than any other in its class! From top to bottom it is clean, easy to maintain, easy on the budget. The 11-B is the kind of profit machine that is *not only more productive* but productive more of the time . . . take a look!

2-Section Cab Lets You Get to Machinery Fast!

The streamlined 11-B cab has folding and sliding panels that open up to let you get at the entire main machinery. You can see what you're doing . . . the machine gets back on the job sooner!

Save Clutch Adjustment Time!

Warm or cool, 11-B clutches perform evenly because of pre-loaded equalizing springs that react to temperature changes, adjust accordingly. Clutches stay smooth and firm throughout the day!

Clutches Identical... Parts Interchangeable!

Bands are reversible for longer wear; one set is an adequate reserve stock!

Pre-Lubed Ball Bearing Swing Circle Needs No Adjustment!

There are no bushings to replace, no adjustments to make, swinging is free and easy.

Unit Assemblies Simplify Replacements

Forget about laborious dismantling of the machine for parts replacement. Components of the 11-B are assembled as units, replaced the same way! The cost is less . . . TIME SAVED means extra production.

Before you buy *ANY* ⅜ or ½-yd machine, find out the facts on the low-cost 11-B! It is a workmanlike machine, built like a big rig, with quality you just don't find on others in this class! See your distributor . . . he'll arrange a free demonstration to meet your schedule. For additional data, write Bucyrus-Erie Company, South Milwaukee, Wisconsin, Dept. J

BUCYRUS ERIE®

Builds Better Equipment

Simplified Connections

New Fire-Fighting Weapon

Absolute Rigidity Means

...longer tool life

...perfect connections

Rigidity on the main ...

Widely spread chain hook washers of the new B-100 are deeply recessed in yoke—cannot slip off when used on large diameter pipe. Unique design of chain hook keeps chain from twisting while tightening. They all add up to absolute rigidity on the main—machine cannot move during drilling, tapping or inserting operations. Broken tools and leaky connections are eliminated.

Rigidity in the boring bar ...

Three widely spaced boring bar bearings, two in the feed sleeve and one at extreme bottom of boring bar, assure perfect boring bar alignment. Molded nylon lower bearing supports drill when it first contacts the main. Pipe curvature cannot deflect drill—tools give longer effective life. These three boring bar bearings guarantee perfect centering of tool and stop, assuring a pressure-tight connection.

These are only a few of the many advanced features of the new Mueller B-100 Drilling, Tapping and Inserting Machine. They are typical, however, of the attention to detail in research, design and engineering that become a part of every Mueller product used by the water industry.

MUELLER® B-100 Machine

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

Company, South Milwaukee, Wisconsin, Dept.

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Year-Round Maintenance Machine

135 The great variety of proven attachments with which the "PAYLOADER" can be equipped changes it from a limited tractor-shovel into a year-round worker, as much at home fighting snow as bulldozing, scraping or spreading blacktop. For literature on the complete "PAYLOADER" line and attachments, write THE FRANK G. HOUGH CO., LIBERTYVILLE, ILL.

Concrete Pipe

136 Descriptive literature on all classes of reinforced concrete pipe designed for greater strength and safety factor and information on standard and extra-strength nonreinforced concrete pipe can be easily obtained by writing to AMERICAN-MARIETTA CO., CONCRETE PRODUCTS DIVISION, 101 E. ONTARIO ST., CHICAGO 11, ILL.

Easier Water Meter Reading

137 The Read-O-Matic, a practical outdoor register that reduces water-meter reading costs, eliminates wasted calls, and contributes substantially to customer good-will, is discussed in detail in a colorful brochure, available from BADGER METER MFG. CO., 4545 W. BROWN DEER RD., MILWAUKEE 18, WIS.

Surveyor's Transit

138 Speed, precision, and versatility as well as ruggedness, simplicity and trouble-free performance recommend the T-1A optical repeating transit to the municipal surveyor or engineer. For details, request *Booklet* T-1A from WILD HEERBRUGG INSTRUMENTS, INC., MAIN AT COVERT ST., PORT WASHINGTON, N. Y.

Cuts Large Pipe

139 Water works men will appreciate this heavy-duty pipe cutter that cuts large size pipe in or out of the ditch, has long-lasting cutter wheels and drop-forged frame and links. For complete details, write ELLIS & FORD MFG. CO., P. O. BOX 308, BIRMINGHAM, MICH. Request circular and price list No. 41AC.

Water Coolers

140 You can now obtain from IGLOO CORP., BOX 8227, MEMPHIS 4, TENN., new literature on its rugged 2, 3, 5, 10 and 15 gallon water coolers, designed to reduce "water break" time at the job site and to keep potable water cool, clear and pure.

Police Motorcycles

141 New literature from HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS., shows how through the use of 2-wheel solo motorcycles and 3-wheeled Servi-Cars you can assure your community extended police protection and at the same time stretch equipment and manpower dollars.

Overlaid Plywood Traffic Signs

142 Specifications, application data and other pertinent information on color-coded regulatory and directional overlaid plywood traffic signs of every size and type, illuminated and non-illuminated, overhead, cantilevered and shoulder mounted, can be obtained by writing to DOUGLAS FIR PLYWOOD ASSOCIATION, TACOMA 2, WASH.

Simplified Connections for Water Pipe

143 The ease with which APCO Altite Joints for cast-iron pipe can be installed, as well as their efficiency, economy and fool-proof operation, are discussed in literature available from ALABAMA PIPE CO., ANNISTON, ALA.

Concrete Joint Sealer

144 Easy to apply and quick curing, Jet Seal is said to have neither gravity nor cold flow tendencies, even at temperatures in excess of 200°F. Descriptive literature states its expectant life is as much as 500% over presently used materials. For details, and information on applicating equipment, write ALLIED MATERIALS CORP., ALLIED BLDG., 5101 N. PENNSYLVANIA, P. O. BOX 7103, 39TH STATION, OKLAHOMA CITY 12, OKLA.

New Fire-Fighting Weapon

145 With the Snorkel, a fireman can place himself in the most advantageous position for fighting a fire. Up or down, right or left, this unusual fire-fighting aerial platform shows virtually unlimited versatility of movement. For descriptive literature, write PITMAN MFG. CO., GRANDVIEW, MO.

Have You This Problem in Street Lighting?

146 If you are troubled by photoelectric street light controls that switch and turn off street lights when vehicle headlights look them straight in the eye, write FISHER-PIERCE CO., 170 PEARL ST., S. BRAINTREE 85, MASS.; they want to hear about and help you with your problem.

(See page 47 for more Bulletins)

SEWER TO TRUCK IN 60 SECONDS!

PAT. PENDING

Sewer Cleaning with a TRUCK-LODER OBSOLETES THIS

DUMPING RAW SEWAGE IN THE STREET

SHOVELING RAW SEWAGE INTO THE TRUCK

- It's Faster!
- It's Safer!
- It's More Sanitary!

FLEXIBLE INC.

3786 DURANGO AVE., LOS ANGELES 34, CALIF.
1005 SPENCERVILLE ROAD, LIMA, OHIO
351 W. JEFFERSON BLVD., DALLAS, TEXAS

Stretching the long arm of the law in Bakersfield

Bakersfield, California — 34 Harley-Davidson Solos and 7 Servi-Cars travel over 30,000 miles each month, keeping law and order in this progressive city of 54,000.

Drive this wedge between lawbreakers and your community

with Harley-Davidson police motorcycles

NO matter where they patrol, Solo officers are a constant threat to lawbreakers. Nothing stops the mobile Solo from *getting through* to where it is needed most whether it be in crowded traffic, on busy expressways or fast-moving highways. And no other vehicle can give you such flexible operation — special duty, criminal apprehension, spot traffic control, escort duty as well as general patrol.

Harley-Davidson Servi-Cars, hard-working partners of the Solo, patrol business and residential areas . . . mark cars . . . check meters . . . perform spot traffic direction. They're partners in *crime prevention* too! Just the sight of an alert officer on a Servi-Car is often enough to discourage the would-be lawbreaker, thug or thief.

To learn more about how you can stretch equipment and man-power dollars, see your dealer or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin for free illustrated folder.

HARLEY-DAVIDSON

Police Motorcycles

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Swimming Pool Filters

147 One of the nation's largest manufacturers of filters for swimming pools has prepared a new technical bulletin to help municipalities with their swimming pool filter problems. For a copy of *Bulletin* 621, write R. P. ADAMS CO., INC., 202 E. PARK DRIVE, BUFFALO 17, N. Y. For information on diatomite filters for municipal water supplies, request *Bulletin* 651.

Voting Machines

148 Designed to fill every ballot requirement and comply with the election laws of all states, these voting machines are also fool-proof and fraud-proof. They feature a vertical type ballot, reduce voting costs, and insure greater speed and accuracy of results. For complete information, write THE VOTING MACHINE CORP., 41 E. 42ND ST., NEW YORK 17, N. Y.

Hydraulic Aerial Lifts

149 Reduction in overhead maintenance costs is said to be as much as 50% when a Skyworker is used for tree trimming operations, street lamp replacement and utility line work. Available in several models, through purchase or lease plan, these hydraulic aerial lifts are fully described in literature from EMHART MFG. CO., SKYWORKER DIV., HARTFORD 1, CONN.

Locates Valve Boxes—Free Trial

150 This improved unit locates valve boxes more quickly and at lower service cost. It operates via magnetic action, is easy to read, and is compact and accurate. For descriptive literature, or a 15-day free trial without obligation, write AQUA SURVEY & INSTRUMENT CO., 2010 LESLIE AVE., CINCINNATI 12, OHIO.

Housings for Municipal Recording Instruments

151 The Emcor modular enclosure system effectively packages groups of recording and control instruments, dials and indicators for easy visual and manual control. The San Jose, Calif., fire control center is Emcor-equipped. Other municipal applications are described in *Catalog* 106; write ELGIN METALFORMERS CORP., 630 CONGDON, DEPT. 1223, ELGIN, ILL.

Air Photos Solve City Mapping Problems

152 A new brochure discusses a practical plan that enables cities both large and small to have up-to-the-minute aerial photo maps for general planning or topographic maps for specific engineering projects on a basis that meets their needs and budget. For details, write AERO SERVICE CORP., PHILADELPHIA 20, PA.; request "Pay As You Grow Plan".

Concrete Pavements Provide Safe Streets

153 The grainy surface of concrete pavements provides dependable skid resistance. Light color increases night visibility. These are but two points of information brought out about concrete streets in literature available from PORTLAND CEMENT ASSOCIATION, DEPT. A7-4, 33 W. GRAND AVE., CHICAGO 10, ILL., which, without obligation, will help you with your street paving program.

Power Plants for Municipal Use

154 Diesel or gas engines for water, sewage treatment and power plants, designed for dependable, economic operation, whether working as prime power, supplementary power or standby power, are discussed in literature available from WHITE DIESEL DIVISION, WHITE MOTOR CO., SPRINGFIELD, ILL., manufacturers Superior engines in ranges from 215 to 2150 hp, or 150 to 1500 kw.

Butterfly Valves

155 Twenty-four page *Catalog* 160 illustrates and discusses R-S butterfly valves, available in both control and shut-off type, with manual, pneumatic hydraulic or electric operators and in a complete size range from one-inch diameter. For a copy, write ALLIS-CHALMERS MFG. CO., YORK WORKS, YORK, PA.

Police Cars

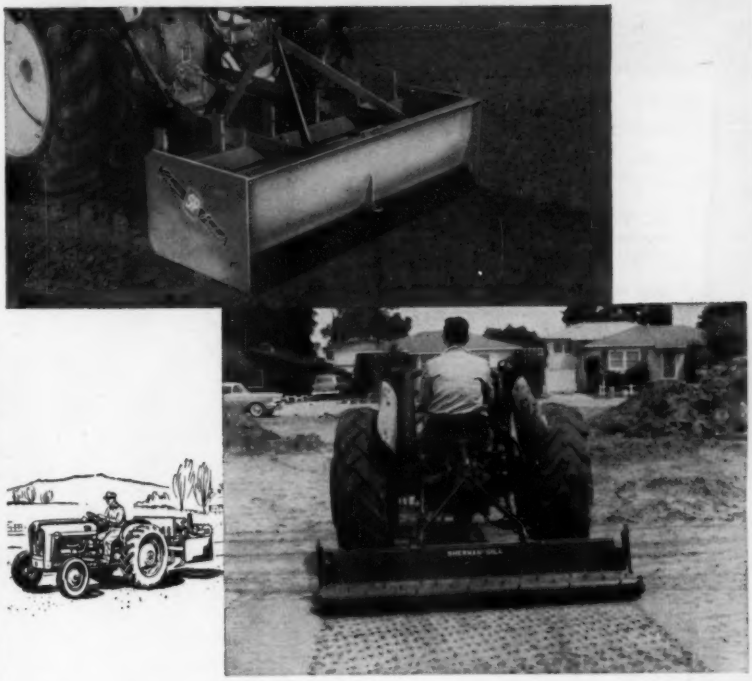
156 These cars are specially designed, built and powered to meet the grueling demands of police work. They are responsive, dependable and cost little to maintain. For complete information, write DODGE DIVISION, CHRYSLER CORP., BOX 1259, DETROIT, MICH.

High-Speed, Mobile Crane-Excavator

157 Descriptive literature stresses the construction and time- and money-saving features of the low-cost 11-B, a workman-like, high-speed mobile crane-excavator that is not only productive on the job but productive more of the time. For complete data, write DEPT. 18EZ, BUCYRUS-ERIE CO., SOUTH MILWAUKEE, WIS.

(See page 48 for more Bulletins)

NOW! a New Process for Landscaping!



Two pieces of equipment instead of seven. Result: lower investment and a terrific saving in time of changing from one attachment to another. That's the capsule story of the new Sherman line of soilworking tools. The Sherman Landscraper and the Sherman-Gill Multi-Purpose Tool revolutionize landscaping.

The Sherman Landscraper does the rough grading. Then the Sherman-Gill scarifies, breaks clods, levels, finish grades, pulverizes, rolls and firms. And when you're finished, you just put the Landscraper on top of the Sherman-Gill and roll down the road to the next job.

The Sherman Landscraper and the Sherman-Gill are inexpensive, high productive landscaping tools. Ask for a demonstration today or write for Bulletin No. 1092.

POWER DIGGERS LOADERS — SHERMAN PRODUCTS — SOIL WORKING TOOLS

SHERMAN PRODUCTS, INC. • Royal Oak, Michigan

Read how FITCHBURG CHIPPER SOLVES BRUSH DISPOSAL County of Bergen, N. J.

OFFICE OF SUPERVISOR OF ROADS
COUNTY OF BERGEN

70 ZABRISKIE STREET
HACKENSACK, N. J.

J. ERNEST THIER, SUPERVISOR
DIAMOND 2-1350

May 26, 1958

Mr. W. O. Forman, President,
Fitchburg Engineering Corp.,
Fitchburg, Massachusetts.

Dear Mr. Forman:

I thought I would take five minutes out to inform you about the efficient work your Fitchburg Chipper is doing in Bergen County.

As you probably well know, this Department maintains 450 miles of County road, much of it in the rural area, and formerly, when cutting brush, we had to use a large dump truck and three men to load it, and we were then faced with the problem of disposing of this brush, which was a job in itself.

Since purchasing the Fitchburg Chipper we only need one or two men and a pick-up truck to haul it, and we are not faced with the problem of disposing of this roadside brush, as the wood is now chipped along the roadside to form a soil-improving mulch.

Yours very truly,

J. E. Thier

Supervisor of Roads.

Free Booklet

Perhaps the savings in man hours and equipment mentioned by Mr. Thier in his letter may apply to your city, town or department.

For further information on how a Fitchburg Chipper can benefit your operation, send for FREE BOOKLET: ***"Chip Dollars from Your Overhead."***

Address Dept. AC-89

FITCHBURG ENGINEERING CORPORATION
FITCHBURG, MASSACHUSETTS

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Truck-Traveling Crane

158 Compact, 100% hydraulic in operation, and with full 280° boom swing, this crane makes trucks self-unloading. Descriptive literature states that it can lift 2½ times as much as most end loaders. For complete details, write ANTHONY COMPANY, STREATOR, ILL.

Elevated Water Tanks

159 *Tank Talks* deals with elevated water storage facilities that can help solve water supply and distribution problems. It is published by R. D. COLE MFG. CO., NEWMAN, GA., fabricators of elevated water tanks in capacities from 5,000 to 2,000,000 gallons.

Shade Tree Care, Weed and Brush Control

160 Technical letters, bulletins and data on the "what, when, where, why and how" of control measures for shade trees, brush, weeds and shrubs, as well as specialized help for specific control problems, are offered by STANDARD OIL COMPANY, 910 S. MICHIGAN AVE., CHICAGO 80, ILL., a leading supplier of spray materials.

Insert New Valves Easily

161 The many advanced features of the new B-100 drilling, tapping and inserting machine introduced by MUELLER CO., DECATUR, ILL., assure absolute rigidity on the main, longer tool life and pressure-tight connections. For descriptive literature, write the company.

Plastic Pipe for Municipal Service

162 All kinds of plastic pipe, for use in sewage systems, water systems, at golf courses, in water wells, are discussed in literature available from CRESCENT PLASTICS, INC., DEPT. C-9, 955 DIAMOND AVE., EVANSVILLE 7, IND., manufacturers of Cresline plastic pipe. Technical and engineering services are available.

Lifts Loads Up to One Ton

163 For illustrated literature on the new Sky Witch, a portable materials lift and hydraulically elevating scaffold, available in several sizes and capacities and ideal for numerous municipal overhead maintenance jobs, write THE CHARLES MACHINE WORKS INC., 603 BIRCH ST., PERRY, OKLA.

Advance in Containerized Refuse Collection

164 A new 4-page brochure shows the simplicity, versatility and efficiency of the Super Roto-Can bulk refuse collection system and points out how it contributes to reducing collection costs. For a copy, write CITY TANK CORP., 53-09 97TH PLACE, CORONA, N. Y.

Ultra-Hard Point Bow Pens

165 Designed especially for drafting on "hard tooth surface" materials, the No. 813-H drop bow pen and the No. 816-H standard bow pen each have long-wearing points made of the hardest metal obtainable, stainless steel body construction, nickel silver handles and legs completely free from play. For literature, write KEUFFEL & ESSER CO., DEPT. AC-7, ADAMS & THIRD STS., S., HOBOKEN, N. J.

(See page 56 for more Bulletins)

IT'S HISTORY-MAKING

the sensational new Pitman Snorkel

Here is the first really new concept in fire apparatus in more than 20 years . . . an entirely new weapon for the fire-fighter. Now, in far greater safety than ever before, a fireman can put himself exactly where he needs to be, and wants to be, to do the most effective job of fighting a fire. Up or down, right or left, in or out . . . the Pitman Snorkel's versatility of movement is virtually unlimited. Hailed in the nation's press as "amazing" and "revolutionary", the Pitman Snorkel is now available for demonstration. Why not see for yourself just how revolutionary it actually is! All you have to do is fill out and mail the coupon below.

NOTE: The unit pictured here is a standard, commercial model of the Pitman Aerial Platform as adapted by the Chicago Fire Department for fire fighting. This unit was used in fighting more than 250 fires during a 6-month period beginning in October, 1958. The many improved features found in the Pitman Snorkel were incorporated as a result of experience gained by the Chicago Fire Department in its use of this unit.

I am interested in seeing a demonstration of the Pitman Snorkel ☐. Please send literature only at this time ☐. I am interested in the 50′ model ☐. 65′ model ☐.

Name_____ Title_____

Dept. (or company)_____

Street_____ Phone No._____

City_____ State_____

PITMAN MANUFACTURING CO.

Grandview, Missouri

Build a real future for your water department with the new

Read-o-Matic*

a REVOLUTIONARY product.... for a totally new method of reading

Now your water department can look to a future of increased efficiency and economy — through the Badger Read-o-Matic, industry's first *practical* outdoor register.

With this revolutionary new outdoor register, you'll play a major role in community progress . . . by providing consistently better water department operation and service to *every* customer . . . starting with these *immediate* benefits:

BOOSTS WATER DEPARTMENT NET REVENUE

Eliminated: meterman recalls, "read-it-yourself" cards, estimated water bills. Result: reduced reading costs . . . and greater savings because of simplified department accounting and operation.

100% METER READING IN HALF THE TIME — AND NO WASTED CALLS

The Badger Read-o-Matic overcomes the chief problem of indoor reading: depending on the customer to be home. Instead, a meterman can complete his reading route in half the time it used to take by the old method — because the register is **outdoors** and always available.

BETTER SERVICE AND CUSTOMER GOOD WILL

Because the Badger Read-o-Matic is accessible to the meterman at all times, the customer will never be inconvenienced again. Your meter records are always up to date; the customer's meter bills will always be accurate.

*Patents applied for in U. S. A. and foreign countries.

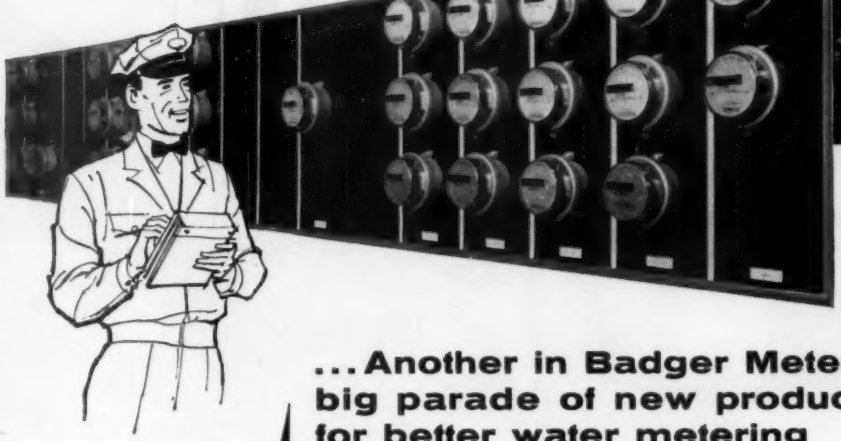
Dynamic New Idea!

Central reading stations

Glamorous *Mayfair,* Milwaukee, marks a new trend in ultra-modern suburban shopping centers. Its *metering system* — trend-setting, too.

A network of Badger Read-o-Matic registers serves Mayfair's more than 85 stores. Meters are located in the stores... connected to a central Read-o-Matic reading station for each section as shown in color on the aerial view (right). A typical panel of Read-o-Matic registers at Mayfair is shown below.

Meter reading — just a few minutes' work. And the Read-o-Matic registers are always accessible.



...Another in Badger Meter's big parade of new products for better water metering

Key to the Badger Read-o-Matic register — a self-powered generator that requires no outside source of power. It originates its own pulses that are recorded on the outdoor register. The register can be placed as far as one-half mile from the meter itself.

This revolutionary meter register is another product of Badger's research devoted *exclusively* to the continuous improvement of water meter design, construction and performance.

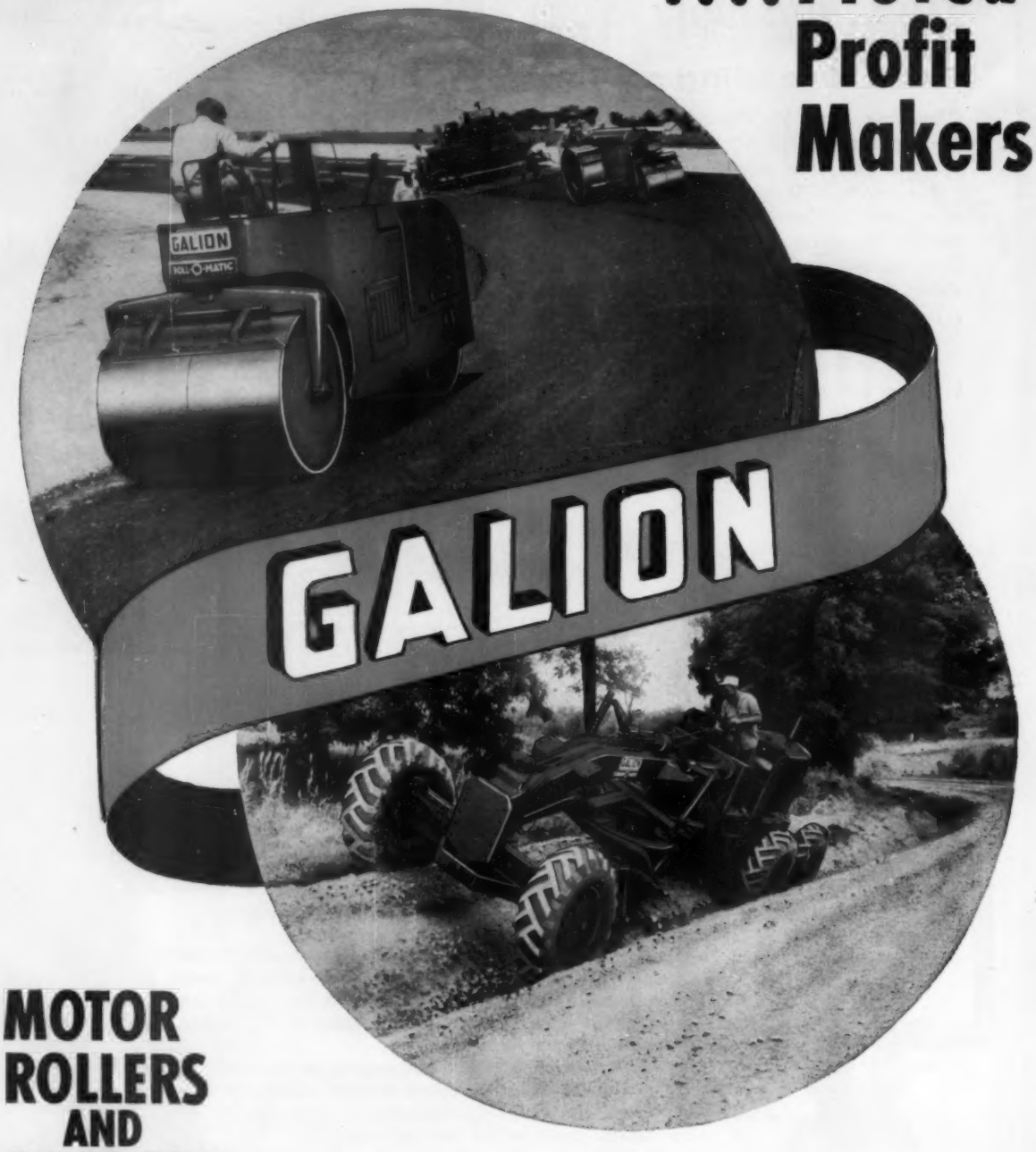
Write us today. We'll send a free, colorful brochure with full details about the new Badger Read-o-Matic outdoor register.

Badger Water Meters

Badger Meter Mfg. Co. • 4545 W. Brown Deer Rd. • Milwaukee 18, Wis.

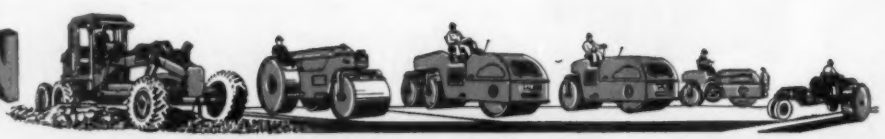
OFFICES IN PRINCIPAL CITIES

.... Proved Profit Makers



MOTOR ROLLERS AND GRADERS

GALION ESTABLISHED 1907



THE GALION IRON WORKS & MFG. CO., GALION, OHIO

To THE AMERICAN CITY's Catalog Supply Department

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BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

IN THE DARK?

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

TO THE AMERICAN CITY's Catalog Supply Department: 8-59
Please send literature on items numbered as follows, starting on page 34

100	113	126	139	152	165	178	191	204	217
101	114	127	140	153	166	179	192	205	218
102	115	128	141	154	167	180	193	206	219
103	116	129	142	155	168	181	194	207	220
104	117	130	143	156	169	182	195	208	221
105	118	131	144	157	170	183	196	209	222
106	119	132	145	158	171	184	197	210	223
107	120	133	146	159	172	185	198	211	224
108	121	134	147	160	173	186	199	212	225
109	122	135	148	161	174	187	200	213	226
110	123	136	149	162	175	188	201	214	227
111	124	137	150	163	176	189	202	215	228
112	125	138	151	164	177	190	203	216	229
									230

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Title:.....

Address:.....

..... 53

A Listing of Your Business Connection is important

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Please send me further information on products described in "Purchasing News" section beginning on page 201, as circled below:

881	886	891	896	901	906
882	887	892	897	902	907
883	888	893	898	903	908
884	889	894	899	904	909
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A Listing of Your Business Connection Is Important

HERE'S A SOLUTION

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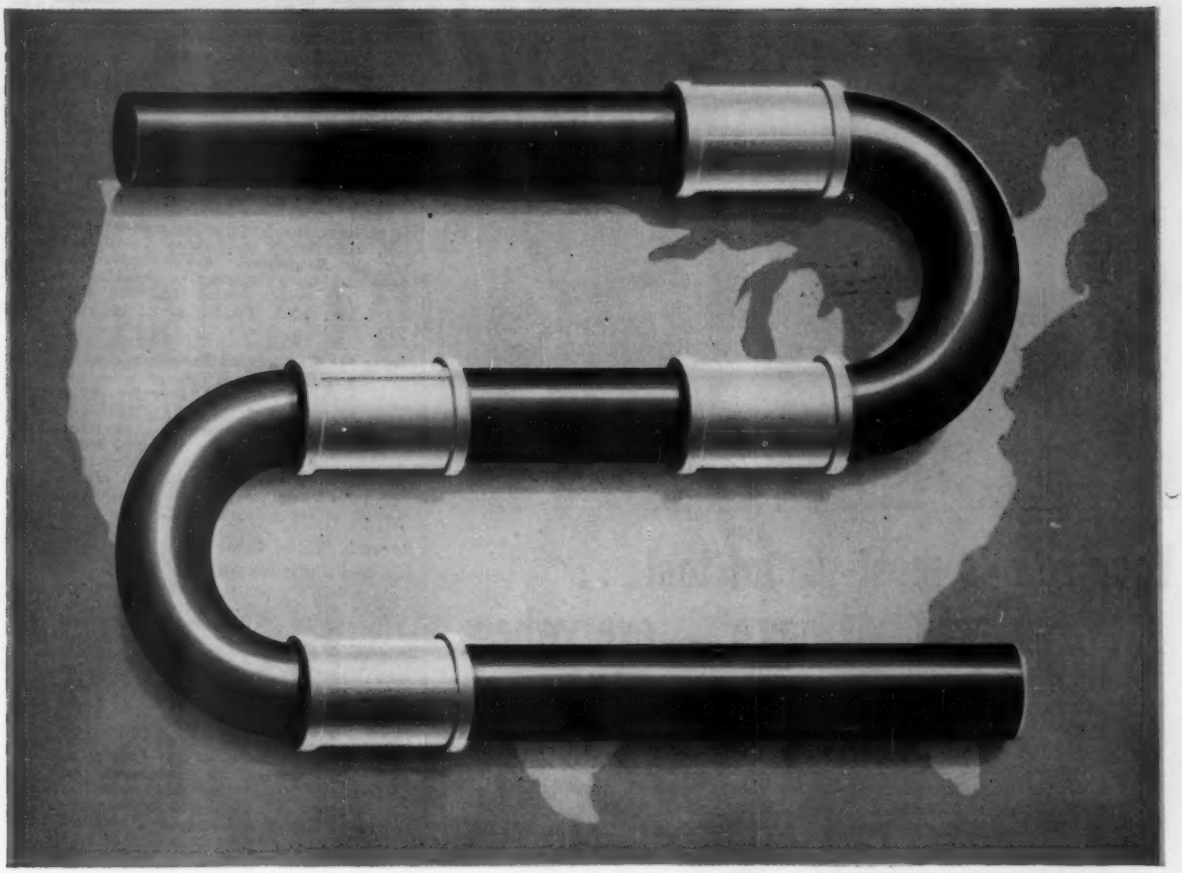
Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

Address: .....

..... 53

A Listing of Your Business Connection is important

Naugatuck KRALASTIC



9,000 miles of evidence... **KRALASTIC** pipe is superior!

Count it by the mile or by the inch, the amount of KRALASTIC® pipe already installed—for everything from drinking water service to salt water disposal, from oil, gas and chemical lines to underground electrical conduit—offers convincing evidence of this superior pipe material's many advantages.

The record of those 9,000 miles of KRALASTIC pipe installed *proves* KRALASTIC's outstanding virtues. Proves the lasting properties of KRALASTIC. Proves the versatility of KRALASTIC. Proves KRALASTIC's extreme ease of installation. Proves its ability to take all kinds of weather, from extremes of Tropic heat to the depth of Arctic cold.

Benefit from the experience of the hundreds of users who have proved the unique advantages of KRALASTIC pipe. Investigate this superior plastic piping material yourself. Write for your free copy of the KRALASTIC story—"9,000 miles of KRALASTIC pipe".

US RUBBER

United States Rubber

Naugatuck Chemical Division

DEPT. 844 K STREET
NAUGATUCK, CONNECTICUT

KRALASTIC RUBBER-RESINS • **MARVINOL** VINYLS • **VIBRIN** POLYESTERS

Akron · Boston · Gastonia · Chicago · Los Angeles · Memphis · New York · Phila. · CANADA: Naugatuck Chemicals · Elmira, Ont. · Cable: Rubexport, N.Y.

NEW BANTAM Self-Propelled CR-350

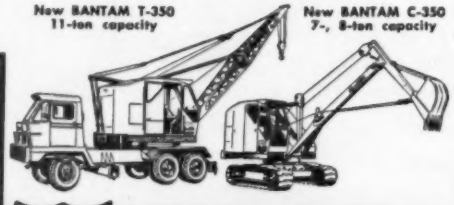
Your town's most useful tool . . . works anywhere . . . everywhere!

Here's the greatest development ever to come to the aid of modest budgets. This all-new BANTAM CR-350, *at a single machine investment,* gives you a mobile, sized-to-go-anywhere "fleet" capable of doing literally hundreds of jobs.

So versatile is BANTAM . . . so money-saving, it works with 11 different attachments—*with travel and work performed by one engine, one man!* And now, with added capacity, faster mobility and greater operating ease, it branches out to take on an even greater job role. For example, you can reap its savings, doing all these (and lots more) vital assignments *single-handed* with your BANTAM self-propelled: lifting, digging, loading, handling materials, driving pile, trenching for all kinds of municipal construction and maintenance and landfill work.

New BANTAM T-350 11-ton capacity

New BANTAM C-350 7-, 8-ton capacity



Quick facts on BANTAM CR-350

- Now 11-ton capacity.
- Fast 11 m.p.h. travel.
- Automotive-type power steering.
- Optional 4 x 4 drive.
- All-vision cab.
- Independent travel, swing, hoist.
- Short-turn radius.
- Big option choice, including diesel power and torque converter.
- Mounts all 11 BANTAM-built attachments.

SCHIELD Bantam Co.

Schield Bantam Co. AC-230
234 Park Street, Waverly, Iowa

I want information on BANTAM CR-350 for municipal work—also details on: ☐ BANTAM T-350, ☐ BANTAM C-350.

Name.....

Title.....

Address.....

City.....Zone....State.....

WORLD'S LARGEST PRODUCER OF TRUCK CRANE-EXCAVATORS

CATALOGS *for Improved Municipal Services*

Write directly to the address given or use the Post Card on page 53.

"Chain Grate" Incinerator Proves Itself

166 Municipal refuse men interested in the advantages of continuous-feed, continuous-discharge type of incinerator grates will want the full story of their success record in New York's Gansevoort plant. The grates feature cast steel links that overlap to prevent fouling, more tuyere sections to provide better air distribution. It eliminates the need for heavy stoking or cleaning of fires. For details, write ILLINOIS STOKER CO., ENG. DEPT. A. C., ALTON, ILL.

Trees for Streets and Parks

167 A whole new family of trees has been developed by THE COLE NURSERY CO., PAINESVILLE, OHIO, which can help municipalities meet their landscaping needs. Strong, hardy and graceful, and easily transplanted, they will add color and enhance the attractiveness of any community. For details, request the company catalog.

Spreads Salt to Combat Ice and Snow on Streets

168 "Big Scottie", the "Scotchman" and the "Arcrite" are chemical spreaders, designed to economically and correctly apply chemicals or salt to ice and snow covered pavements. They are fully described in literature, available from TARRANT MFG. CO., 23 JUMEL PLACE, SARATOGA SPRINGS, N. Y.

Grader-Mounted Roller

169 Quickly attached to any Caterpillar motor grader, the GraderolleR can be easily lowered and raised as needed. It is designed for all types of surface rolling and maintains constant controlled pressure, regardless of the position of the grader. For complete information, write MARTIN CO., 620 ANDREWS AVE., KEWANEE, ILL.

Refractors for Large Mercury Lamps

170 Two new Holophane refractors designed specifically for new PEMCO 400-watt mercury horizontal luminaires, provide daytime safety in nighttime traffic, high-level efficiency, low-cost maintenance. For descriptive literature, write HOLOPHANE COMPANY, INC., STREET LIGHTING DEPT., NEWARK, OHIO. Request information on Refractor No. 4062 I.E.S. Type II and Refractor No. 4063 I.E.S. Type III.

Tractor Shovels

171 A new 8-page booklet discusses the features of Traxcavators, including the new Series F No. 933, in terms of speed and dependability, ease of operation, stability, construction and attachments. For a copy of "Designed for Action", *Form* No. 33281, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

Plastic Cone Traffic Guides

172 These tough, rugged, durable plastic Hi-Way Cones are available in three sizes. Bright yellow and red colors are permanent; cone heads are adaptable for signs, flashers, flags; weighted reinforced base gives added strength and stability. For details, write for illustrated circular to SERVICISED PRODUCTS CORP., 6051 W. 65TH ST., CHICAGO, ILL.

(See page 58 for more Bulletins)

OCT. 10, 1954: 6" SNOW AND SLEET—CLEVELAND, OHIO
OCT. 28, 1951: 5" WET SNOW—UPPER NEW ENGLAND
OCT. 25, 1955: FREEZING RAIN—CHICAGO AND DETROIT
OCT. 24, 1956: 3" SNOW, FREEZING RAIN—SOUTH DAKOTA
OCT. 20, 1952: 4" SNOW—WILKES-BARRE-SCRANTON, PENN.

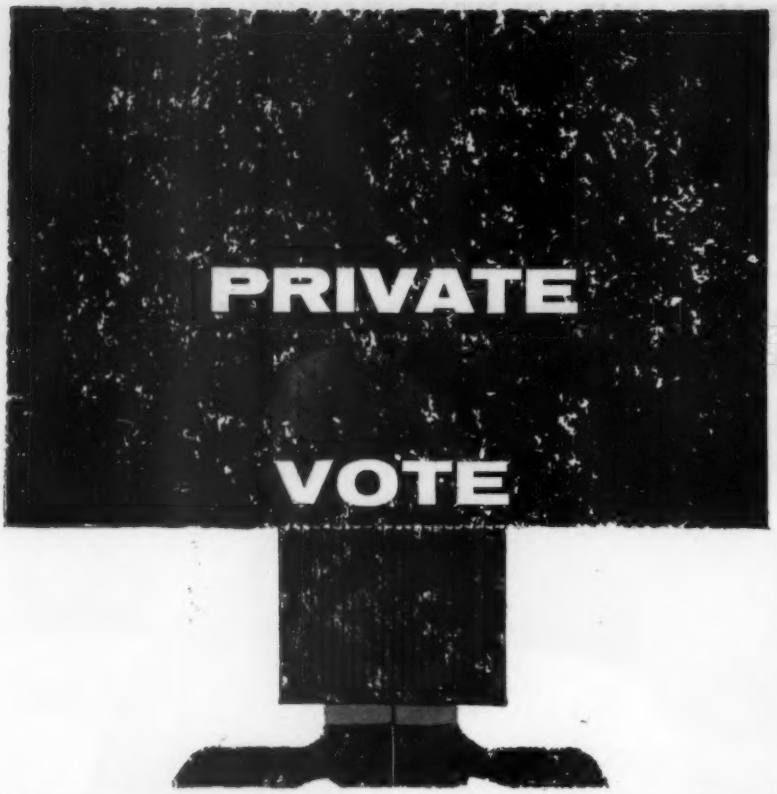
(Source: U. S. Weather Bureau Climatological Data)

1959?

Prepare for early storms—
order STERLING ROCK SALT now

If you're caught without rock salt, early storms can paralyze traffic, cause serious accidents, mean heavy business losses. Don't let this happen to you! Stockpile your Sterling Rock Salt now and stockpile enough. (When treated with Storite, Sterling Rock Salt can be kept from caking even in outside storage.) Order *now* from your nearest International Salt Company sales office.

INTERNATIONAL SALT CO., INC., SCRANTON, PA.
Baltimore • Boston • Buffalo • Chicago • Cincinnati • Cleveland • Detroit
Newark • New York City • Philadelphia • Pittsburgh • Richmond • St. Louis



for better elections

Each Shoup Voting Machine forms a self contained, steel-sided voting booth complete with curtains, thereby assuring every voter absolute privacy.

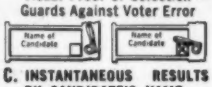
Upon entering, a turn of the voting switch to the right electrically activates the machine and closes the curtains. The voter is now ready to choose his candidates on the ballot, which is scientifically inclined for the best reading angle. The entire interior is illuminated by the machine's permanent lights. After voting selections are completed, a turn of the voting switch back to the left registers the individual votes for the various candidates, returns the voting levers to upright position, and opens the curtains.

Shoup Voting Machines are designed to fill every ballot requirement and comply with the election laws of all states. They are the only voting machines that duplicate the traditional vertical paper ballot with which voters are familiar. They are fool-proof and fraud-proof, reduce voting costs, and insure greater speed and accuracy of results. Impartial surveys prove the Shoup Voting Machine superior . . . more perfectly designed and constructed to meet the requirements of the voting public. That's why more and more communities, from the smallest to the largest, are using Shoup Voting Machines for better elections.

The ABC's of Superiority...

A. THE VERTICAL TYPE BALLOT (see illustration)

B. THE MOVING [X] MARK – Visual Proof of Selection – Guards Against Voter Error



C. INSTANTANEOUS RESULTS BY CANDIDATE'S NAME Directly on the Face of the Machine No Decoding Necessary

28 States Already Use Shoup Voting Machines

SHOUP

THE SHOUP VOTING MACHINE CORPORATION

EXECUTIVE OFFICES: 41 E. 42nd St., New York 17, N.Y. • SALES OFFICES: 1701 West End Ave., Nashville 3, Tenn.

the voting machine that looks like a ballot

MONEY SAVING *catalogs*

Write directly to the address given or use the Post Card on page 53.

Lightweight, Compact Centrifugal Pump

173 A new centrifugal pump, offering flexibility of application and capable of effecting substantial cost reductions by conserving weight and space, has been announced by R. S. CORCORAN CO., P. O. BOX 1404, MOUND AT BRANDON, JOLIET, ILL. For literature, write the company.

Shovel, Hoe, Crane, Dragline and Clamshell

174 A 16-page catalog now available from KOEHRING DIVISION, MILWAUKEE 16, WIS., shows that company's crawler-mounted 205 working as ⅜-yard shovel and hoe, a crane handling a concrete bucket, a ¾-yard dragline and ¾-yard clamshell. Assembly photos feature the Koehring self-cleaning crawler system, smooth swinging hook rollers and enclosed gearing in the upper machinery.

New Portable Air Compressor

175 Designed for simple operation and maintenance, this new single-stage piston-type portable air compressor with 125 cfm capacity is powered by a Le Roi 4-cylinder gasoline engine and has a rated compressor speed of 1300 rpm. For complete information on Model 125G1, write SALES PROMOTION DEPT., LE ROI DIVISION, WESTINGHOUSE AIR BRAKE CO., MILWAUKEE 1, WIS.

Sanitary Landfill

176 Though titled "How to Construct a Sanitary Landfill", this booklet goes beyond the construction stage. It discusses initial planning, methods of operation, equipment operation, guides to controlling the landfill, and operating costs. For a copy of this valuable source booklet, write DROTT MFG. CORP., MILWAUKEE 15, WIS.

Lie Detectors

177 *Bulletin* 6-1.2 discusses three lie detection instruments in the Keeler line. New engineering advances in the Model 6303 are described as well as complete interrogation equipment designed for use with this model. The two portable units discussed are self-powered Model 305 and a-c line operated Model 6305. For a copy, write ASSOCIATE RESEARCH, INC., 3777 W. BELMONT AVE., CHICAGO 18, ILL.

Corrosion-Resistant Flow Tube

178 Model DFT-PI, a rugged plastic-insert Dall flow tube adaptable to water and sewage system use and available in sizes from 4" to 48", meters acids, alkalies, slurries and gases with a high degree of accuracy and at low cost. *Bulletin* Ref. No. 115.20-1 fully describes it. For a copy, write B-I-F INDUSTRIES, INC. 345 HARRIS AVE., PROVIDENCE, R. I.

Earthmoving Equipment

179 Two new catalogs are available from the CONSTRUCTION MACHINERY DIV., ALLIS-CHALMERS MFG. CO., MILWAUKEE, WIS. *Booklet* MS-1312 gives engineering features and operating advantages of the TS-260 motor scraper powered by the new A-C 16000 diesel engine developing 230 hp. *Catalog* MS-1251 covers the A-C HD-6 diesel-powered crawler tractor and its many accessories which increase its versatility.

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Split-Case Centrifugal Pumps

180 Case histories from municipal water and sewage pumping stations show that these split-case centrifugals provide exceptionally high and dependable efficiency with steady, low-cost operation over long periods of time. For complete information, write FAIRBANKS, MORSE & CO., 600 S. MICHIGAN AVE., CHICAGO 5, ILL.

Rugged Snow Plows

181 These plows are designed to do their jobs faster, more safely and at lower cost. They are available in four basic types, each with models to fit 1½ to 12-ton trucks. For descriptive folders on these V-type, one-way, and roll-over snow plows, write FRINK SNOPLOWS, INC., CLAYTON, N. Y.

Versatile Tractor Unit

182 In every municipal operation—mowing, materials-handling, loading, snow removal, setting up playground equipment—the versatile "440" with ⅝-yard loader, crane, or fork lift works easily, economically and ably. For full facts, write JOHN DEERE INDUSTRIAL DIVISION, DEPT. 509, MOLINE, ILL.

Air Photos Aid Planning Development

183 A new 4-page folder describing 1959 air-photo coverage of the Delaware Valley area by AERO SERVICE CORPORATION, 210 E. COURTLAND ST., PHILADELPHIA 20, PA., may be obtained by writing to this world-wide aerial mapping firm. The photos are particularly useful as planning and development aids.

Training Manual for Truck Drivers

184 The latest edition of the White *Driver's Manual* for truck owners, fleet superintendents and drivers is a 158-page compilation of authoritative motor truck data designed to help the truck driver conserve equipment and keep it operative. It was compiled with the aid of a nationwide study of drivers' problems and their solution. To obtain a copy for $1.25, write SALEM PROMOTION DEPT., THE WHITE MOTOR CO., 842 E. 79TH ST., CLEVELAND 1, OHIO.

Sewage Pump Stations in Complete Units

185 These factory-built units are compact, economical, efficient and easy to maintain. For job recommendations, specifications and drawings, write for a 100-page data manual on pump stations and pneumatic ejector lift stations to SMITH & LOVELESS, INC., DEPT. 10, P. O. BOX 8884, KANSAS CITY 15, MO., manufacturers of a complete line of lift stations with capacities from 20 gpm to 4800 gpm.

Better Settling Tanks for Sewage Purification

186 Now you can obtain complete information on how you can increase the capacity of your sewage treatment plant economically through use of the Rex Verti-Flo, which augments settling tank capacity, the Rex Rim-Flo, which enlarges capacity of circular clarifiers, and the Rex Float Treat System, which provides overload relief. For literature, write CHAIN BELT CO., 4648 W. GREENFIELD AVE., MILWAUKEE 1, WIS.

Dependable Air Control Valves

187 *Catalog R* illustrates, gives complete specifications for, and explains the operating characteristics of the complete line of Crispin air valves, which are designed to safely and satisfactorily maintain full flow capacity in lines carrying water, sewage and other liquids-in-motion. For a copy, write MULTIPLEX MANUFACTURING CO., DEPT. AC, BERWICK, PA.

Off-Street Parking

188 Is it possible for municipal off-street parking to be handled automatically, with positive control and at a profit? WESTERN INDUSTRIES, INC., 2730 W. 36TH PLACE, CHICAGO 32, ILL., says that it is, and that it can be flexible, dependable and easy, too. For details, write the company.

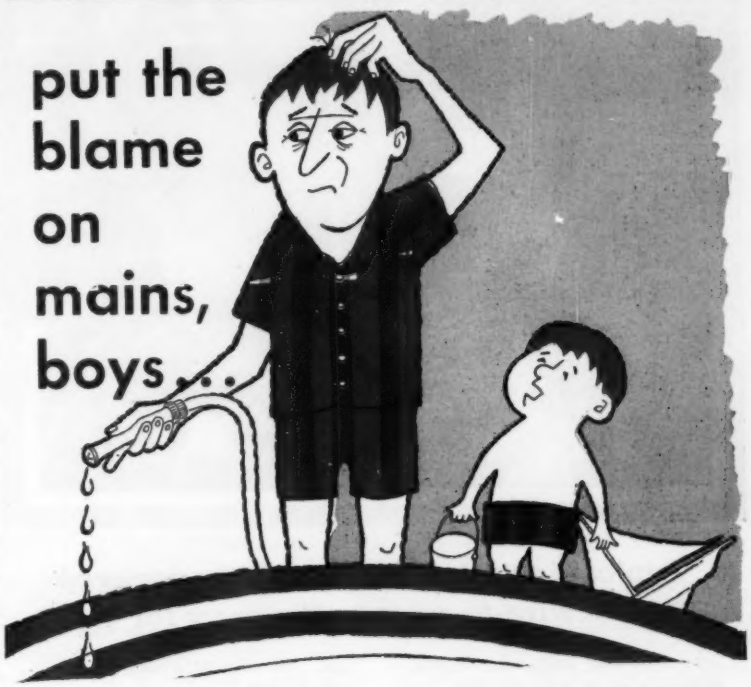
Fire-Fighting Apparatus

189 A concise, illustrated catalog will introduce you to Boardman-built pumpers and tankers, which are designed to dependably meet the fire-fighting needs of both the urban and rural community. For a copy, write THE BOARDMAN CO., OKLAHOMA CITY, OKLA.

Steel Pipe for Large-Diameter Water Mains

190 Full information on tar-enameled steel pipe noted for its steady, reliable service, for high flow capacity, leak-proof joints and long-range economy can be obtained from BETHLEHEM STEEL CO., BETHLEHEM, PA.

(See page 60 for more Bulletins)



Did you hear a lot of customer complaints about low water pressure last summer? After the spring's heavy rains which filled reservoirs to the brim all over the country, *there should be no water shortage.* The problem probably rests underground . . . mains and distribution grids choked by pressure-killing tuberculation and corrosion.

There's one sure cure for your pressure problem . . . the Centriline Process. Centrilining permanently increases carrying capacities in all sizes of pipe by eliminating tuberculation and corrosion forever. After loose scale and tubercules are removed from the pipe, the Centriline machine applies a smooth, uniform coating of cement-mortar to the pipe wall by centrifugal force. Fast and economical, Centrilining is accomplished with a minimum of interruption to surface traffic, since the pipes are lined in place and excavations are not required at laterals and services.

With the introduction this year of the new, small diameter Centriline machine, you can permanently protect all water lines from 4 to 144 inches in diameter. Send today for our new brochure which fully describes the Centriline Process.

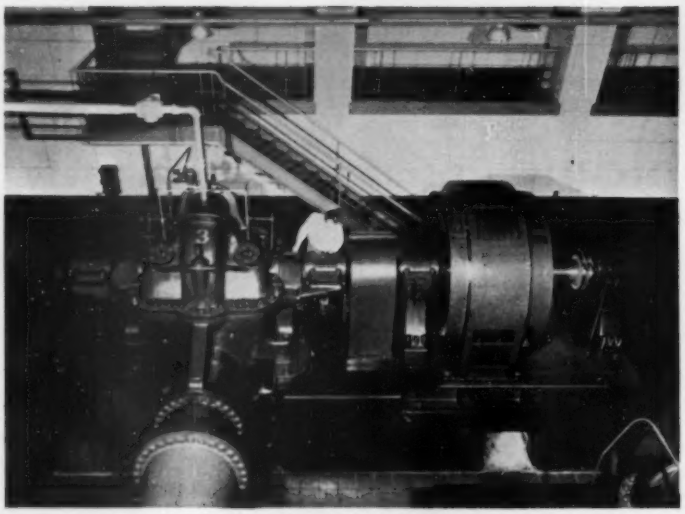
CENTRILINE CORPORATION

A Subsidiary of Raymond International Inc.

140 Cedar Street
New York 6, N. Y.
WOrth 2-1429

Branch Offices in Principal Cities of the United States, Canada and Latin America.

A case for F-M Split-Case Centrifugals!



Typical installation in Toledo averages 80.314% wire-to-water efficiency for year!

Exceptionally high and dependable efficiency with steady, low-cost operation year after year—that's the report from a host of municipalities and industries using Fairbanks-Morse pumps in their pumping stations.

Why? Ask stations like Collins Park High Service in Toledo, O., where five Fairbanks-Morse 36-in. Split-Case Centrifugal Pumps have been giving superb performance for 17 years. The No. 3 pump in the photo pumped 6,065,590,000 gallons in one year alone, handling 26.13 percent of the plant total, and consuming just 3.55 kilowatts hours per million foot gallons!

Your Fairbanks-Morse Field Engineer welcomes you to inspect many other reports like this from his files—reports revealing why no other manufacturer can match the experience of Fairbanks-Morse in providing pumps and drivers for both municipality and industry. Your F-M Field Engineer will be glad to work with your own engineers in selecting the best equipment for your specific requirements. Write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

See Sweet's Product Design Catalog File for complete F-M Pump Line.

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

PUMPS • SCALES • ELECTRIC MOTORS • DIESEL, DUAL FUEL AND GAS ENGINES
LOCOMOTIVES • COMPRESSORS • GENERATORS • MAGNETOS • HOME WATER SYSTEMS

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Water Works Brass Goods

191 These carefully-fashioned corporation and curb stops are manufactured from bronze metal, machined to exact tolerances, and available in a wide range of sizes. They are fully described in free catalog literature available from A. Y. McDONALD MFG. CO., DEPT. AC-859, 12TH & PINE, DUBUQUE, IA.

Stops Odors, Freshens Air

192 Safe, nontoxic and noninflammable, these space deodorizes effectively and economically put an end to objectionable odors, leaving surrounding air with a garden freshness. For full facts and application details, write AIRE-ACTOR CORP., 271 MADISON AVE., NEW YORK 16, N. Y.

Swimming Pool Filters

193 To obtain pure, clear water for community swimming and wading pools, a dependable, efficient water-filtering system is needed. For helpful facts on this subject, write BOWSER, INC., E. CREIGHTON, FORT WAYNE, IND. Request *Bulletins* 816 and 614.

Tapping Sleeves and Gate Valves

194 Tapping sleeves and valves for branchline connections to main lines under pressure and a complete selection of dependable, efficient gate valves in sizes from 2" to 72" are discussed in literature available from THE LUDLOW VALVE MFG. CO., INC., TROY, N. Y.

Street Sweeper Rental Plan

195 Now, without making a capital investment, cities of every size can have clean streets at comparatively low cost. The Wayne Rental Plan makes this possible. For a brochure giving particulars, write WAYNE MFG. CO., 2431 E. LEXINGTON ST., POMONA, CALIF.

Fights Snow and Ice

196 Snowfighting equipment—plows and spreaders—are the subject of informative literature available from THE FLINK CO., 600 NORTH VERMILLION ST., STREATOR, ILL. The plows are reversible or one-way, for mounting on 1½- to 5-ton trucks, and are designed for fast, low-cost operation. The spreaders handle sand, cinders and salt, and can be used for seal coating and dust control work.

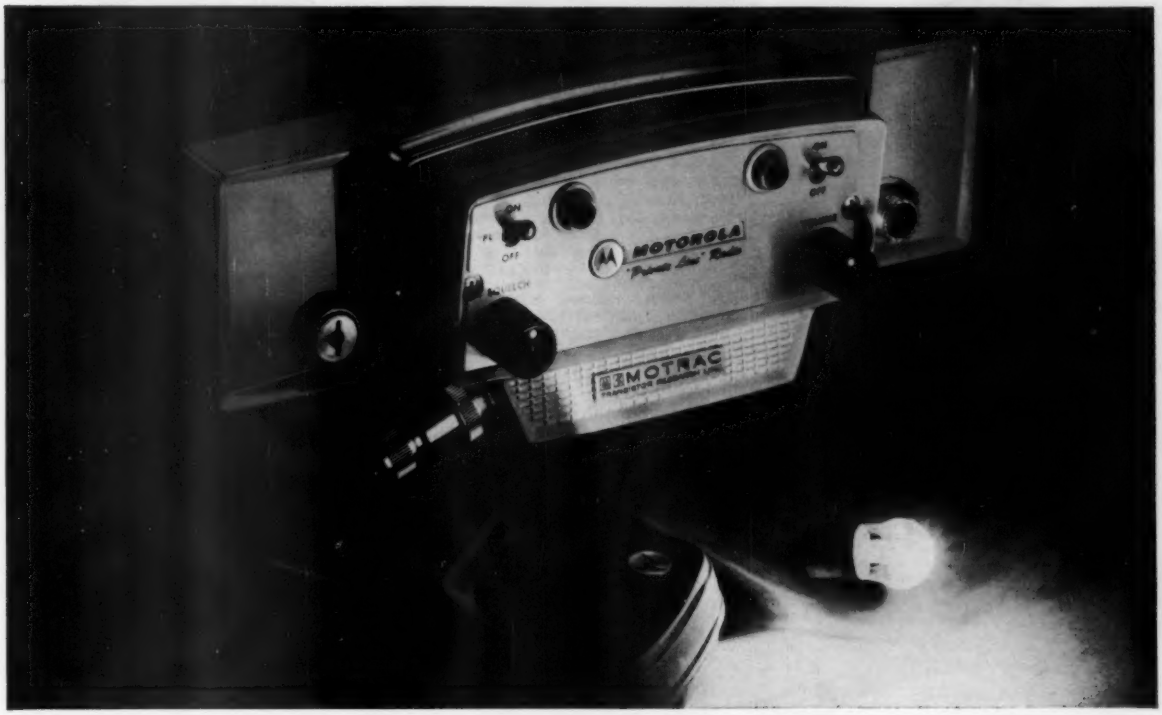
Dry Chemical Weigh Feeder Machines

197 These electronically controlled diminishing batch weigh feeder machines provide accurate, dependable and continuous feeding of dry chemicals in water and sewage treatment plants at a desired predetermined rate of from 3 to 300 pounds per hour. For illustrated catalog section, giving data, specifications and description, write SYNTRON CO., 430 LEXINGTON AVE., HOMER CITY, PA.

Versatile Material Handler

198 Municipalities will find numerous applications for this adaptable machine and its quickly interchangeable attachments—for whether assigned to park and street maintenance, snow removal, culvert installation, loading or spreading operations it works with dispatch, safely and economically. For details, write PETTIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL.

(See page 62 for more Bulletins)



Even your dome light draws more current than MOTRAC 2-way radio!

Motorola ends costly power drain problems and idling expense with the first fully transistorized receiver and power supply

What makes Motorola MOTRAC radio the most economical and reliable 2-way radio unit in the annals of mobile communications? Not just one or two new features, but a score of revolutionary design advancements that bring you the very finest set ever engineered.

1. On standby—the MOTRAC receiver draws only a trickle of current—actually 80% less than conventional units—with an occasional increase to maintain crystals at proper temperature for precise on-frequency operation (even your dome light draws more current than MOTRAC radio). Yet, this radio is always poised for instant reception, thanks to its fully transistorized receiver. Result: no life-shortening battery drain . . . no more costly, unnecessary engine idling.

2. MOTRAC radio eliminates the most common maintenance problems: vibrators in the power supply and tubes in the receiver. All are replaced by stabilized long-life transistors.

3. Up to 40°F cooler operation means less aging and strain on components. Reason: no more receiver tube filaments; a more efficient power supply; a battery saver switch to cut off transmitter filaments; and two separate heat sinks—one for power supply, another for transmitter output tubes.

4. The MOTRAC receiver operates directly from the 12-volt battery; its low voltage operation results in less electrical strain on components, assures long life.

5. Traditional Motorola engineering and production excellence are evident throughout MOTRAC radio. Transistors undergo three separate checks, including a week of stabilization at 185°F. Only industrial-type tubes, especially suitable for the rigors of mobile operation, are used in the transmitter.

6. Patient production testing continues under stringent quality control procedures. First, each module is tested. Then each chassis is independently checked. Next, each radio is tested as a composite whole. Finally, the entire radio and associated accessories are checked out as a complete operating system.

7. MOTRAC radio is conservatively designed. The receiver has *even higher* reserve gain than conventional Motorola units to assure *peak performance* for many years. Also, power supply transistors are operated under an exceptionally high safety factor to assure extended service life.

8. Completely independent receiver and transmitter chassis, with no power supply in common, assure reliable reception regardless of transmitter performance.

9. MOTRAC radio offers you 2½ to 3 times higher audio output than conventional sets.

10. MOTRAC radio is designed for split-channel operation. *Both* receiver and transmitter meet critical split-channel stability frequency requirements.

Experienced users have been field testing MOTRAC radios for many months. The results are in—and they're excellent. We'd like to tell you *all* about them. Write, wire or call: Motorola Communications & Electronics, Inc., A Subsidiary of Motorola, Inc., 4501 West Augusta Blvd., Chicago 51, Ill., SP 2-6500. MOTRAC is a Motorola, Inc. trademark.

HAYS

the Quality Line IN WATER SERVICE PRODUCTS

CORPORATION STOPS

One of a complete line of Water Service Products

GENERAL PRODUCTS DIVISION
HAYS MFG. CO.
ERIE, PA.

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Buckets and Pails

199 Illustrated, descriptive literature indicates that there is a Fortex molded rubber pail or tub for virtually every application where this type of product would be specified—for garbage and refuse, for grout use, maintenance and general utility, etc. For catalog information, write CAUCHOTEX INDUSTRIES, INC., 44 WHITEHALL ST., NEW YORK 4, N. Y.

Dependable Snow Fighting Equipment

200 Nine styles and 55 models of snow plows, material spreaders, and a truck grader ice blade that planes, breaks and removes ice and hard packed snow are products described in catalog literature available from WAUSAU IRON WORKS, WAUSAU, WIS.

Coin Handling Equipment

201 Virtually a complete source of information for those who handle coin and currency, *Catalog* 67 describes a full line of coin handling equipment and accessories that includes such items as a rapid coin sorter, coin wrappers, lead seal presses, cotton coin bags, and electric counter-packager. For a copy, write ABBOTT COIN COUNTER CO., INC., 143RD to 144TH STS. and WALES AVE., NEW YORK 54, N. Y.

100% Kill to Mosquito Larvae

202 When tossed into infested waters—pools, catch basins, lake shorelines, ditches—these gelatin capsules of highly concentrated insecticides rupture, spreading a chemical film on the water's surface that deals quick death to all species of mosquito larvae. For descriptive literature on these compact, lightweight Tossits, write WYCO INTERNATIONAL, 4811 CARNEGIE AVE., CLEVELAND 3, OHIO.

Really Sweeps Streets Clean

203 You can now get complete specifications and performance data on a vacuumized street sweeper powerful enough to catch dust particles as fine as 5 microns and designed so as to require no water spray, eliminating unsightly mud streaks and winter-freeze problems. For information on the Model 100, write G. H. TENNANT CO., 751J N. LILAC DRIVE, MINNEAPOLIS 22, MINN.

Cold Mix Bituminous Paving Material

204 Street construction and maintenance men will be particularly interested in Gilsapave, which makes possible a dense, graded cold mix that is initially stable in cold weather, finally stable in hot weather, and can be applied by conventional methods. For complete information, write AMERICAN GILSONITE CO., SALT LAKE CITY, UTAH.

Concrete Sawing Equipment

205 For every concrete and asphalt sawing job there is a CONCUT sawing machine and appropriate blade. Recent addition to the group is the Precision Bump Cutter, which planes concrete or asphalt surfaces to desired tolerances, smoothing out undesirable roughness. *Catalog* 20 shows the complete line. For a copy, write CONCUT SALES CO., 1845 BELCROFT AVE., EL MONTE, CALIF.

Surge Control, Water Hammer and Check Valves

206 THE WILLIAMS GAUGE CO., INC., 2 GATEWAY CENTER, PITTSBURGH 22, PA., has published two valuable booklets dealing with these subjects. *Bulletin* WH-851 is an 8-page analysis of the cause, effect and control of water hammer in piping systems. *Bulletin* WH-654 includes sizes and other data on Williams-Hager check valves, which control surge pressure and operate silently without water hammer.

Recreation Equipment

207 A complete line of safe, sturdily constructed and imaginative playground equipment occupies most of the space in a 30-page catalog that also features equipment for swimming pools, basketball backstops and dependable fittings. For a copy of *Catalog* No. 59, write THE EVERWEAR MFG. CO., INC., P. O. BOX 284, NEWPORT, KY.

Make Better Street Signs More Economically

208 By writing to DEPT. RKB-79, 3M COMPANY, ST. PAUL 6. MINN., you can obtain information on an automatic sign applicator that can be used to refurbish signs, reflectorize street name signs, make bridge markers—quickly and at low cost.

Crawler-Mounted Shovel-Crane

209 A 12-page, 2-color bulletin describes and illustrates the Model C-350 crawler-mounted crane-excavator and its complete line of Bantam-built front-end attachments. Track sizes, side rails and wide extensions available, as well as standard and optional features found on the C-350 upper unit, are also discussed. For a copy of *Bulletin* No. C-350, write SCHIELD BANTAM CO., WAVERLY, IA.

Making the Most of Existing Parking Space

210 A way to achieve greater utilization of available parking space and at the same time reduce metering costs 27% is discussed in an informative booklet, available from DUAL-PARKING METER CO., SUBSIDIARY OF ROCKWELL MFG. CO., PITTSBURGH 8, PA.

New Cast Iron Pressure Pipe Facility

211 Cast iron pressure pipe for use in water, gas and oil transmission lines is to be manufactured in economical 20-foot lengths and in diameters of 4 to 12 inches at Council Bluffs, Ia., by GRIFFIN PIPE DIVISION, GRIFFIN WHEEL CO., 445 N. SACRAMENTO BLVD., CHICAGO 12, ILL. Pipe joints will include slip-on, mechanical joint and bell and plain end. For details, write the company.

Better Street Lights, Better Business

212 Good lighting stimulates shopping and promotes better business. For full facts on refractors of Pyrex glass that direct light down on the pavement, resist storms, cold and vandals, write CORNING GLASS WORKS, 63 CRYSTAL ST., CORNING, N. Y.

Concrete Pipe for Low Headroom Installations

213 Those concerned with planning, designing and construction of sewerage and drainage systems will find the brochure, entitled "Elliptical Concrete Pipe for Sewers and Culverts" of particular interest. Published by UNITED STATES CONCRETE PIPE CO., 1500 UNION COMMERCE BLDG., CLEVELAND 14, OHIO, it contains illustrated descriptions on the use of Elliptical pipe to obtain round pipe flow equivalents in areas where either shallow or narrow trenches make use of full round pipe impractical.

(See page 64 for more Bulletins)

THE *Versatile* JOHN DEERE "440"

Today, It's a Mower...Tomorrow, a Loader

Big projects or odd jobs, the John Deere "440" takes them all in stride! With ample power, maneuverability, and handling ease needed for grading and loading, the "440" also provides fuel economy that shows up in real savings on mowing and other routine jobs. This tractor-of-all-trades pays off in even greater versatility when you take advantage of John Deere attachments that further cut costs. The 5/8-yard loader bucket, for example, can be quickly replaced by a multi-use blade, fork lift, or crane, for example, to adapt this low-cost tractor power to other duties in park maintenance.

GASOLINE OR DIESEL

The John Deere "440" Tractor is now available with either gasoline or Diesel engine power. Two other utility tractors are also offered with a wide variety of power-matched equipment. And any John Deere Tractor can be purchased on terms through the John Deere Credit Plan. See your John Deere Industrial dealer for detailed information.

JOHN DEERE Industrial Tractors and Equipment

SEND FOR FREE LITERATURE

JOHN DEERE INDUSTRIAL DIVISION
Moline, Ill. Dept. 509

Please send literature on John Deere Tractors and Equipment for park maintenance.

*Name*_____

*Address*_____

*City*_____ *State*_____

FREE catalogs

Write directly to the address given or use the Post Card on page 53.

Repairs Concrete

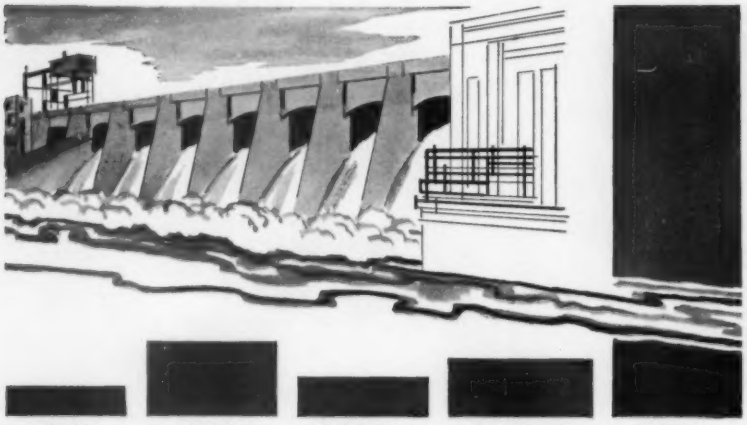
214 Where quick and permanent repair of concrete is required—water reservoirs, linings of sewage and filter tanks, swimming pools — this equipment sees excellent service. *Bulletin* 3000 describes various types of Gunite work done with the Cement Gun, a product of CEMENT GUN CO., ALLENTOWN, PA.

Barricade Kits

215 Unusual feature of this sturdy line of barricade kits, recently introduced by PACIFIC MERCURY, 14052 BURBANK BLVD., VAN NUYS, CALIF., is that should they be damaged, the impaired parts can be easily replaced. For descriptive literature, and information on flasher warning lights, write the company.

Steel Foundation Products

216 Products covered in a new 4-page folder released by ARMCO DRAINAGE & METAL PRODUCTS, INC., Middletown, Ohio, are Hel-Cor pile shells, steel piles and steel caissons. Typical installations are pictured and condensed data given. When requesting copies of *Folder* FB-7959, write PRODUCTS INFORMATION SERVICE.



WATER—
World's Largest Industry

Annual U. S. production of steel averages about 120 million tons; coal, 600 million tons; agriculture, 400 million tons; petroleum, 340 million tons. But, based on weight, water supply is the largest industry.

In the United States alone public water supply averages about 70 million tons per day or 25 billion tons per year. Over 17,000 public water systems in the U. S. supply about 17 billion gallons daily to 111 million people. The average costs is about 10 cents per ton delivered in the home—a little over 2 cents per person per day. To do this requires an investment in plant and equipment of some 7 billion dollars.

The people of the United States now are the largest per capita consumers of public water supplies in all history.

The men who design, build, maintain and operate America's public water works deserve more credit than they receive for doing well a job which is vital to the public welfare and the national economy.

This Series is an attempt to put into words some appreciation of the water works men of the United States.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF W WALWORTH

Smooth Surface for Ice Skaters

217 Economical ice maintenance at municipal ice skating rinks is made possible by the Zamboni Ice Re-Surfacer, which shaves ice, picks up snow, squeegees and lays water on the ice to provide a fresh, new surface. Operations can be done at one time or singly. For complete information, write FRANK J ZAMBONI & CO., 8041 E. JACKSON, PARAMOUNT, CALIF.

Portable Fire-Fghting Equipment

218 Foam eductors, nozzles, rotating cellar and attic pipe, foam liquid and foam makers and chambers and automatic proportioning systems are some of the items illustrated and described in a new catalog of equipment engineered to bring greater efficiency and economy to fire fighting. For a copy, write ROCKWOOD SPRINKLER CO., PORTABLE FIRE PROTECTION DIV., 30002 HARLOW ST., WORCESTER 5, MASS.

Clears Clogged Water Intakes

219 The Leonard trash rake, which removes leaves, grass, roots, branches and other debris from trash racks that protect water intakes at power, sewerage and water supply plants, considerably reduces head and power losses resulting from clogged water intakes. For literature, write ALLIS-CHALMERS MFG. CO., INDUSTRIES GROUP, MILWAUKEE 1, WIS.

Controls Dust, Increases Life of Mechanical Sweeping Brooms

220 DD-135 is a liquid chemical to be added to water tanks in mechanical street sweepers. A small quantity aids in the control of dust, helps the operator of a mechanical sweeper avoid respiratory irritation from dust, and doubles life of the fibre of sweeping brooms. For information, write NATIONAL DISINFECTANT CO., 2417 COMMERCE ST., DALLAS 26, TEXAS.

Time Switches for Traffic Warning Signals

221 A new model flasher for traffic signals featuring variable speed adjustment with a magnet has a range of 7 to 30 flashes per minute. Front-mounted cams make cam adjustment or replacement a simple process. For descriptive literature on the Model 46 Flasher, which can be used for alternating, on and off, and speller actions for one or two circuits, write TIME-O-MATIC, INC., 1100 BAHLS ST., DANVILLE, ILL.

Detects Holidays in Wrapped Metal Surfaces

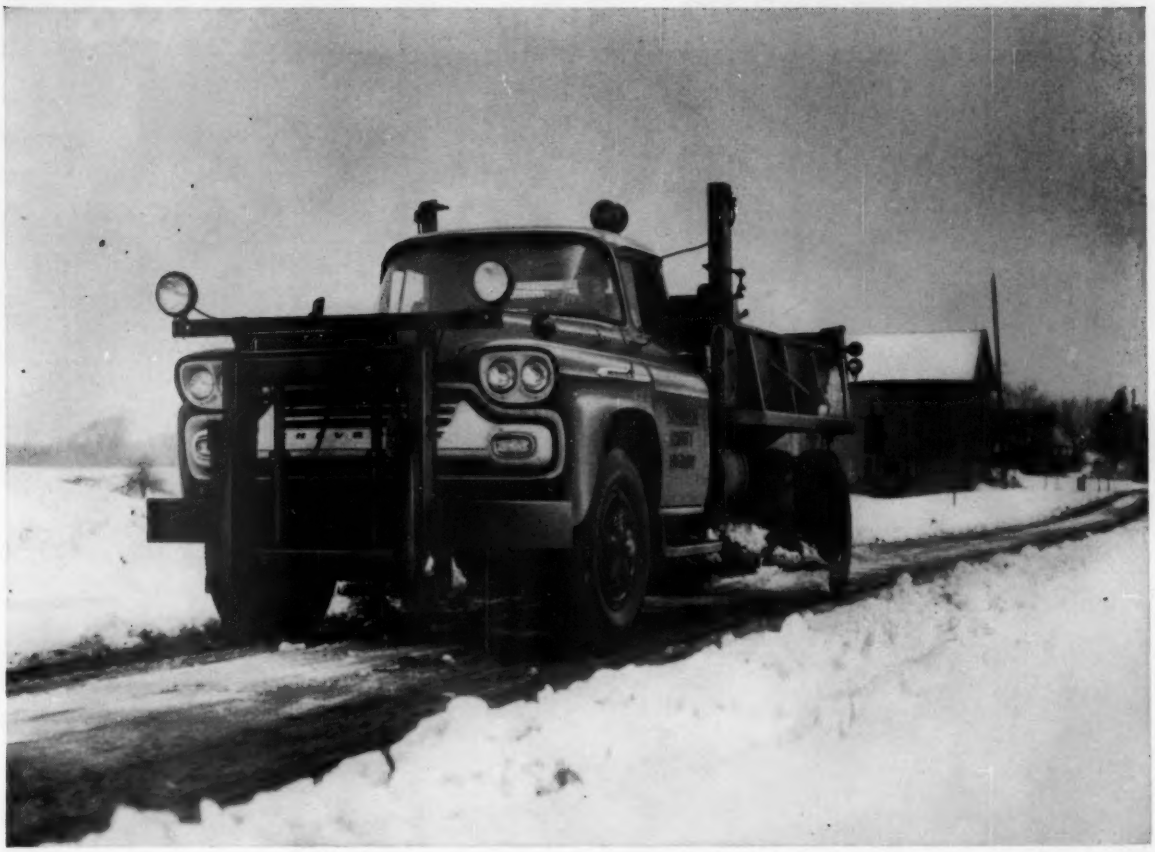
222 Dependable and economical inspection of wrapped field joints, surface tees, valves and fittings is accomplished easily when using a Model LS/1 holiday detector, designed primarily for the electrical inspection of pipe and metal surfaces wrapped with protective tapes of polyvinyl and polyethylene, etc. For complete information on this portable unit, write TINKER & RASOR, 417 AGOSTINO ROAD, P. O. BOX 281, SAN GABRIEL, CALIF.

Tractor Shovels

223 Specification bulletins on three Trojan tractor shovels—Model 104 (9,000-pound lifting capacity), Model 124 (10,000-pound lifting capacity), Model 154 (12,000-pound lifting capacity)—show the user how to obtain maximum production at fast, economical operation. Standard and optional equipment for each model are listed. For copies, write THE YALE & TOWNE MFG. CO., Trojan Div., BATAVIA, N. Y., or SAN LEANDRO, CALIF.

(See page 67 for more Bulletins)

Chevy outsaves other makes on tough county government job



"This Chevrolet 10403 model is giving us up to 48% better gas mileage."

—CLYDE J. McLELAND, SUPT.,
STEUBEN COUNTY HIGHWAY
DEPARTMENT, ANGOLA, INDIANA

"Cost records show that our Chevrolet trucks have been carrying more cubic yards at six-tenths of a cent less per mile. When your trucks travel 347,000 miles as ours did last year, that kind of savings is mighty important. Compared to a similar size truck of another make our 10403 model with the new Workmaster engine is giving us up to 48% better gas mileage.

"We decided this year to try the advantages of an automatic transmission. Chevrolet Powermatic answered our need perfectly. We have found that it is more economical from both a fuel and maintenance standpoint because it's practically impossible to 'lug' the engine."

Chevy, you'll find, is winning a lot of new boosters among municipal managers, for a number of good reasons. Reasons like money-saving *power*, for instance. Chevrolet for '59 offers newly improved valve-in-head 6's that nurse a gallon of gas like nothing in trucks has before. Or big V8's for every Series that include the shortest stroke design—the best saving design—in the field. And for the *toughness* that leads to low maintenance, Chevy's advanced chassis components are specially designed for the capacity to out-muscle the roughest kind of runs. For the *latest* in low-cost hauling equipment, see your Chevy dealer! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

No job's too tough for a Chevrolet truck!

USCOLITE PLASTIC PIPE

*Commonwealth of Virginia, Hampton Roads Sanitation District Commission Treatment Plant at Foot of 44th St., Norfolk, Va.

Uscolite pipe solves an external corrosion problem for sanitation district

The Uscolite® pipe line installed in this treatment plant* carries 150 gallons a minute of a saturated chlorine water solution (actually treated sewage water) from the chlorinator to the main sewage line entering the plant.

Prior to installation of Uscolite, pipe severely corroded externally due to the chemical content of the soil and electrolytic action. *Uscolite has eliminated the costly maintenance and constant replacement of pipe.* Uscolite pipe was installed above and below ground because it is rigid enough to resist soil pressure, yet flexible enough to follow earth contours. UscoWeld† Fittings were installed in a fourth the usual time, saving many dollars. The welds are as strong and permanent as the pipe itself. Clamp-type fittings that leak, pull off and impair flow are never needed. *Not one foot of Uscolite Pipe has ever failed in service, when used in accordance with our recommendations.*

USCOLITE ELIMINATES COSTLY PIPE INSTALLATION

Superintendent of this plant says: "The simplest 'big' piping job we ever performed. Four men laid 1000 feet of 6" pipe per day without a sweat."

• • •

When you think of plastic pipe, think of your "U. S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial plastic products.

†Patent applied for

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

MONEY SAVING *catalogs*

Write directly to the address given or use the Post Card on page 53.

Submersible Pumps

224 These pumps operate automatically and noiselessly, which means they can be located close to the load center. They require no lubrication, only minimum maintenance, and do not require air-conditioning or filtering equipment to remove heat and dirt from ventilating air. They are fully described in literature available from BYRON JACKSON PUMPS, INC., P. O. BOX 2017A, TERMINAL ANNEX, LOS ANGELES 54, CALIF.

Digs Trench by Itself

225 Designed to cut trench inexpensively, the husky Davis Pup has been equipped with a 6-speed winch mechanism that draws it straight down the line to be dug, making it self-operating. Gasoline or electric-driven, it is particularly suitable for water service lines and lawn sprinkling systems. For literature, write DAVIS MFG. INC., 1301 S. HANDLEY, WICHITA 13N, KANS.

Corrosion Protection for Sewage Plants

226 Help with sewage plant corrosion problems comes from KOPPERS COMPANY, INC., in the form of a booklet, entitled "Sewage Plant Protection." For a copy, write to the company's TAR PRODUCTS DIVISION, DEPT. 103H, PITTSBURGH 19, PA., manufacturers of Bitumastic protective coatings with waterproof coal tar base.

Protective Fencing

227 Fence, fencing materials, gates, posts and fittings are the subject of a 40-page full-line catalog available from KEYSTONE STEEL & WIRE COMPANY, S. ADAMS ST., PEORIA 7, ILL. Of particular interest to municipalities will be the section on Non-Climbable fence and gates, Galvannealed for rust resistance and designed for maximum protection against theft, vandalism and trespassing.

Better Cemetery Planning

228 Many helpful and authoritative ideas as well as suggested plans are available free of charge to the municipal official concerned with cemetery planning and expansion. All are contained in a booklet published by ROCK OF AGES, BARRE, VT.

Cleans Sewers Thoroughly

229 Advantages and details of operation are pointed out in literature which discusses the Truck-Loder, an efficient sewer cleaning machine that brings deposits from sewer to truck directly, eliminates dumping of unsightly and unsanitary sewer filth on streets, and frees one man from bucket dumping and shoveling. For copies, write FLEXIBLE, INC., 3786 DURANGO AVE., LOS ANGELES 34, CALIF.

Improved Concrete Reinforcement Fabric

230 The greatly increased tensile and yield strength of newly improved USS American Welded Wire Fabric for concrete reinforcement will permit longer joint spacing for reinforced concrete slabs on ground, give greater strength, longer life, increased freedom from cracking and less maintenance. For details, write AMERICAN STEEL & WIRE, DEPT. 990, 614 SUPERIOR AVE., N.W., CLEVELAND 13, OHIO.

Photo Courtesy of Woodlawn Cemetery, New York

With over 400 acres of lawns, trees, walks and roads . . . grass cutting is a major cost factor at WOODLAWN CEMETERY. Especially since costs have risen 400% in a decade.

It's small wonder this world renowned New York Cemetery *buys equipment only on a basis of performance and longevity.*

Naturally, for deluxe lawns, they rely on LOCKES. Their 40 LOCKE Single Units work 4 days and are serviced on the 5th.

WOODLAWN management reports LOCKE standardization, top performance with elimination of practically all secondary trimming, accounts for faster, better lawn care and repair techniques; *resulting in the highest possible return for the dollar.*

LOCKE SINGLE UNITS: PLAIN OR REVERSE MODELS

- 25" Model cuts and trims .54 acres p.h.
- 30" Model cuts and trims .70 acres p.h.
- Equipped with either 2½ or 5 h.p., 4 cycle B. & S. engines.
- Roller drive construction.
- Turns at any angle.
- Entire mower travels on cut grass.
- Finger tip control.
- Full floating, counterbalanced and gauged shoes.

70" and 75" TRIPLEX models also available.

Be Prepared to Cut Your Grass Cutting Costs...
A LOCKE demonstration will convince you.

Send for details *TODAY!*

Locke **POWER LAWN MOWERS**
1315 Connecticut Avenue Bridgeport 1, Conn.
A product of Locke Steel Chain Co.

Frank L. Friedli, *Manager En-Tronics Sales, The Cooper-Bessemer Corporation, reports on...*

How automation pays off at Nantucket

Nantucket Gas and Electric Company had a costly power plant problem caused by Nantucket's population variation from a normal 3500 to a summertime 15,000. Now, everything is under control with a *fully automatic* Cooper-Bessemer En-Tronics system.

Peak load on this resort island requires three Cooper-Bessemer engines driving generators totaling 2950 kw capacity. The background photo shows this installation.

The En-Tronics control system, shown in the other photo, makes possible unattended operation. It starts engines, puts them on the line when the load builds up, takes them off when not needed, maintains correct frequency at all times, and increases plant efficiency over manual control. It also improves plant reliability, sensing irregularities and taking corrective action quickly.

Mr. C. G. Snow, Vice President of the Nantucket utility says, "It is expected that cost of the En-Tronics installation will be paid off rapidly from savings."

Find out how this new automatic control can be applied to *your* advantage. Write for free copy of new Bulletin E-88.

BRANCH OFFICES: Grove City • New York • Washington • Gloucester Chicago • Minneapolis • St. Louis • Kansas City • Tulsa • New Orleans Shreveport • Houston • Greggton • Dallas • Odessa • Pampa • Casper Seattle • San Francisco • Los Angeles

SUBSIDIARIES: Cooper-Bessemer of Canada, Ltd.... Edmonton • Calgary Toronto • Halifax

C-B Southern, Inc.... Houston

Cooper-Bessemer International Corporation ... New York • Caracas Mexico City

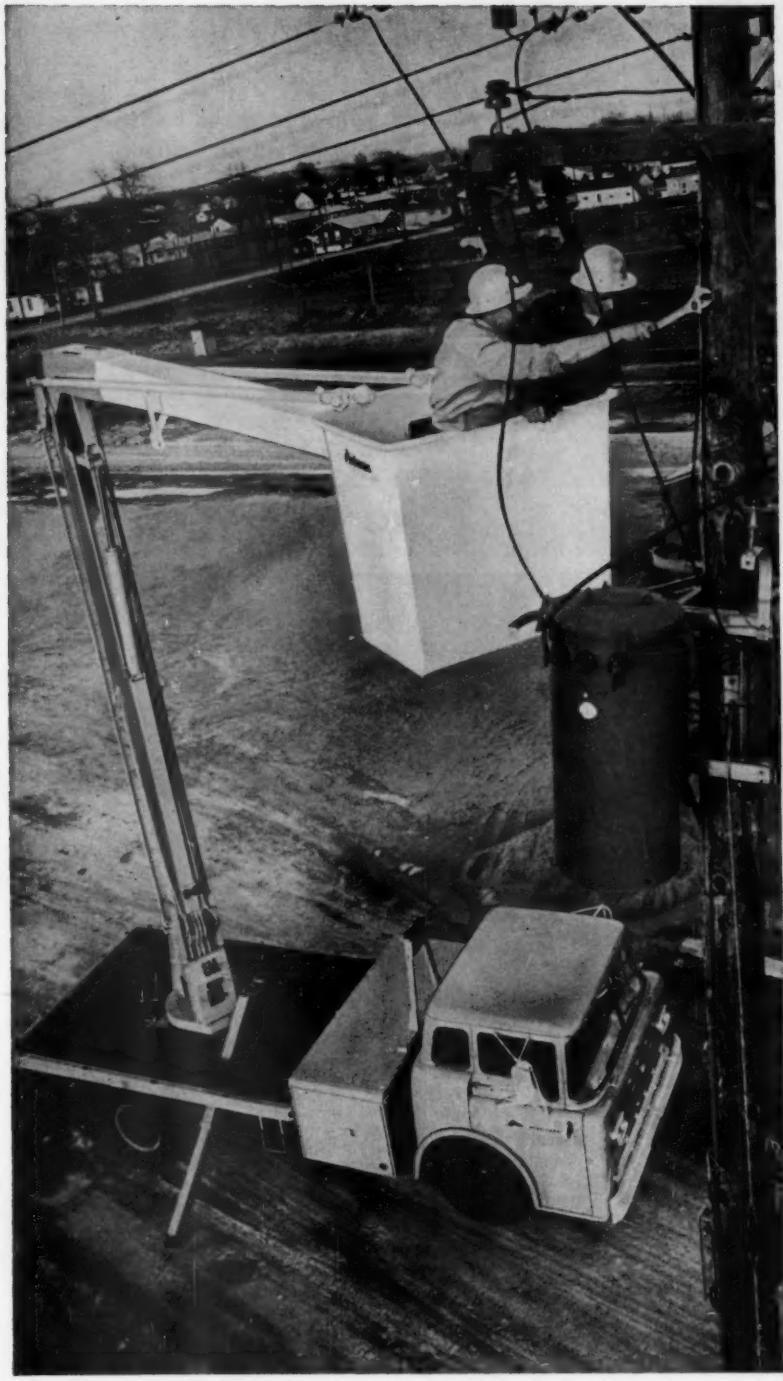
Cooper Bessemer

GENERAL OFFICES: MOUNT VERNON, OHIO

ENGINES: GAS • DIESEL • GAS-DIESEL
COMPRESSORS: RECIPROCATING AND CENTRIFUGAL
ENGINE OR MOTOR DRIVEN

"I've seen our Ford Tandems pull

NOW! ALL FIBER GLASS BOOM



available with

Pitman Aerial Platform

Working in and near power lines, you want the absolute maximum amount of protection it is possible to provide. And that's exactly what you get with Pitman's new all fiber glass boom. It's been subjected to tests far exceeding in severity anything you might ever expect in normal power line work. In every test, it has been proved completely "operator safe". In addition to the complete protection if offers against electrical hazards, this boom offers amazing stability. Swaying or flexing present no problems. This is the aerial platform boom men who work in and near power lines have been demanding. Why not let your Pitman distributor arrange a demonstration for you now. Just fill out and mail the coupon below today.

Control is Easy and Sure

A direct fiberglass, mechanical linkage control system is employed. No hydraulic lines in the upper boom . . . it's a truly trouble-free system. By easy movement of hand levers, operator gets an immediate, positive and completely-controlled response.

Pitman also manufactures

Hydra-Lift Model 50

Hydra-Lift Model 60HB with digger attachment

Pitman Manufacturing Co.
Grandview, Missouri

☐ Please send me literature.
☐ I am also interested in a demonstration.

Name _____

Company _____

Street _____

City _____ State _____

MANUFACTURED BY
Pitman Manufacturing Co.
Grandview, Missouri

will be paid off rapidly from savings.

"I've seen our Ford Tandems pull out where others couldn't"

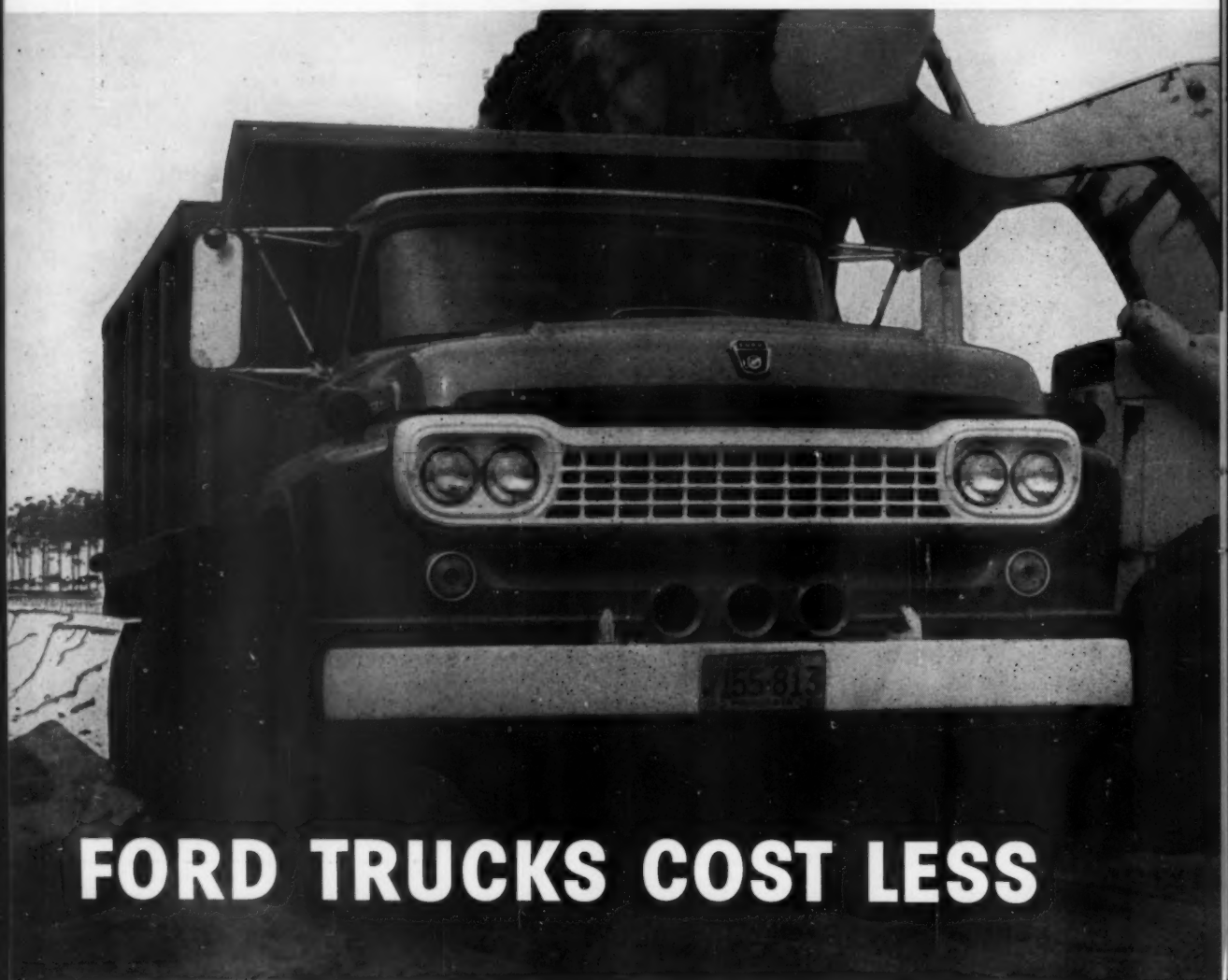
says Walter E. Carlson, President
Park Construction Company, Minneapolis, Minnesota

"We're still using the first Ford Tandems we bought in 1954!

"In the construction business, our trucks really take a beating. They have to be rugged and durable, and that's why we like our Ford Tandems. On one of our earth moving jobs, for example, our Ford T-800's are in constant operation an average of ten hours each day, traveling about two hundred miles. They climb out of the pit, loaded with twelve yards of dirt, and walk right up a 12% grade. In fact, I've often seen our Fords pull out of places where other trucks couldn't.

"My father, who started the business back in 1910 with a horse and wagon, bought one of the first Ford Trucks ever made. That was over 44 years ago—and we've used Ford Trucks ever since. We pioneered the use of Ford Tandem Axle Trucks in this area in 1954. Now we have a total of forty trucks, including thirty-five Fords.

"We completely overhaul our trucks at the end of each construction season. That way we keep them in top operating condition and they last longer. We like Ford service, too, because we don't have to tie up our money in a large parts inventory. We can always get the parts we need quickly from our Ford Dealer."



FORD TRUCKS COST LESS

'59 FORD PICKUPS GIVE 25.2% MORE MPG!

25.2% advantage delivered in Economy Showdown
Tests means five days' driving on four days' gas

The nation's leading automotive research organization* proved and certifies that a '59 Ford Six Pickup will run five days on the same amount of gas the average competitive '59 pickup burns in four days.

The tests were made on 1959 six-cylinder ½-ton pickups of the six leading makes purchased from dealers – just as you would. The trucks were tested in every kind of driving–high and low speeds, open highway and city streets, even simulated door-to-door delivery. And in every test '59 Ford Sixes delivered more miles per gallon than any other make.

Here are the actual percentages:

HOW NEW '59 SIXES RATE IN GAS MILEAGE						
'59 FORD SIXES GIVE	25.2% more miles per gallon than Make "C"	31.1% more miles per gallon than Make "I"	9.6% more miles per gallon than Make "G"	42.6% more miles per gallon than Make "D"	22.0% more miles per gallon than Make "S"	25.2% more miles per gallon than the average of all makes

What's the secret of Ford's economy? First, of all pickup sixes, only the Ford Six has modern Short Stroke design which reduces engine friction and thus requires less fuel. Second, to this modern engine, Ford has added a new economy carburetor to meter fuel more precisely in both high- and low-speed ranges.

Your Ford Dealer has the complete report of Economy Showdown U.S.A. See him and get the whole story firsthand.

Go Ford-ward for savings!

**Name available on request.*
Send inquiry to P.O. Box 2687, Detroit 31, Michigan

★ Fast Economical Installation

★ Permanent Bottle-Tight Joints

AMERICAN Fastite** JOINT*

CAST IRON PIPE

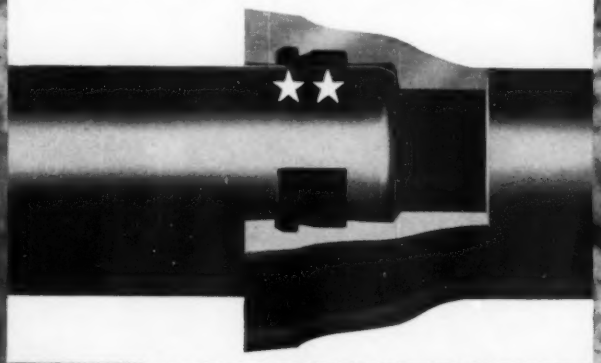
Compare before you buy! Find out why the time and labor-saving features of the single gasket, push-type AMERICAN Fastite Joint have made it America's favorite for water, sewage and other liquid service.

Check these AMERICAN Fastite Joint advantages

- Only one joint component for fast installation
- No calking or bolting required
- All-weather installation
- Double-sealing**, dual-density rubber gasket provides ample deflection with permanent bottle-tight joints

AMERICAN Fastite Joint pipe combines minimum maintenance with the century-proven service life of cast iron pipe. Call your nearest AMERICAN Cast Iron Pipe Company representative now for full facts.

*Patent applied for; Underwriters' Laboratories, Inc., approved.

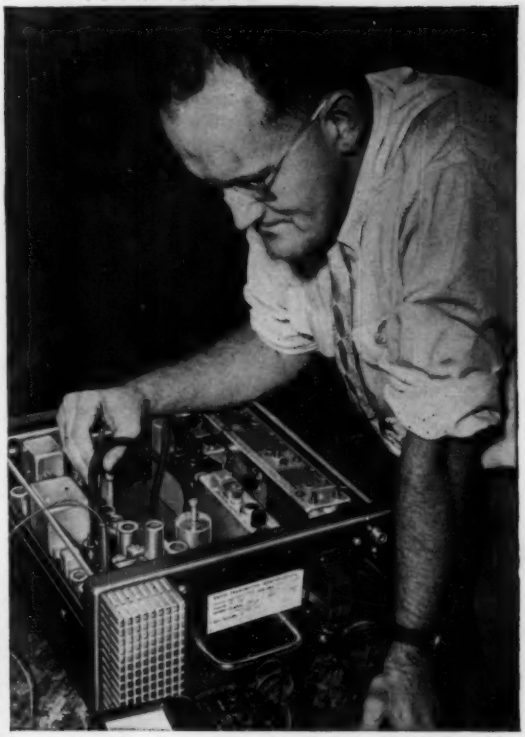


AMERICAN CAST IRON PIPE CO.
BIRMINGHAM ALABAMA

SALES OFFICES
New York City • Dallas
Chicago • Kansas City
San Francisco • Denver
Pittsburgh • Orlando
Minneapolis • Cleveland
Birmingham

**Name available on request.*
Send inquiry to P.O. Box 2687, Detroit 31, Michigan

STANDS UP BETTER...



...SERVICES EASIER

General Electric Progress Line Two-Way Radio

General Electric Progress Line two-way radio is built to stand up under the roughest punishment. Triple-rigid construction, extra sturdy individual chassis, all-welded mounting rack, rugged steel outer case . . . these are some of the reasons G-E Progress Line equipment can really take it!

When service *is* needed, Progress Line mobile and station units are designed to make the job fast and easy. Individual transmitter and receiver chassis may be removed with only a screwdriver. Bench servicing is simplified because individual mobile transmitter and receiver chassis can be plugged into any standard G-E power supply.

INTERCHANGEABILITY

You also require a smaller inventory of parts and equipment to keep your Progress Line system on the air. That's because transmitters and receivers are interchangeable between mobiles and base stations. And the separate mobile transmitter, receiver and power supply chassis are rack-mounted in an all-welded steel frame—for extra-fast chassis changes.

General Electric Progress Line two-way radio offers you efficient, reliable communication at the lowest possible cost. Your G-E communications consultant can give you full details. He's listed under "Radio Communication Equipment" in the Yellow Pages. Or write General Electric Co., Communication Products Dept., Section 189, Mountain View Rd., Lynchburg, Va.

GENERAL ELECTRIC

COMMUNICATION PRODUCTS DEPARTMENT

IOWA *valve installation at Fort Dodge, Iowa, pumping station which pumped 1,600,000,000 gallons of water in 1958 as against 350,000,000 gallons in 1932.*

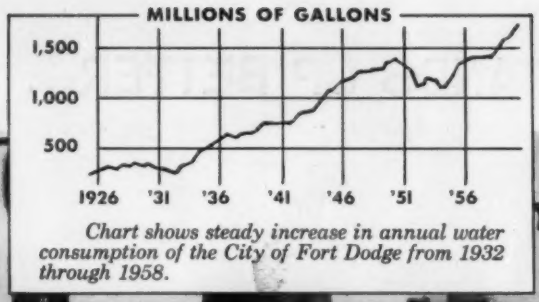
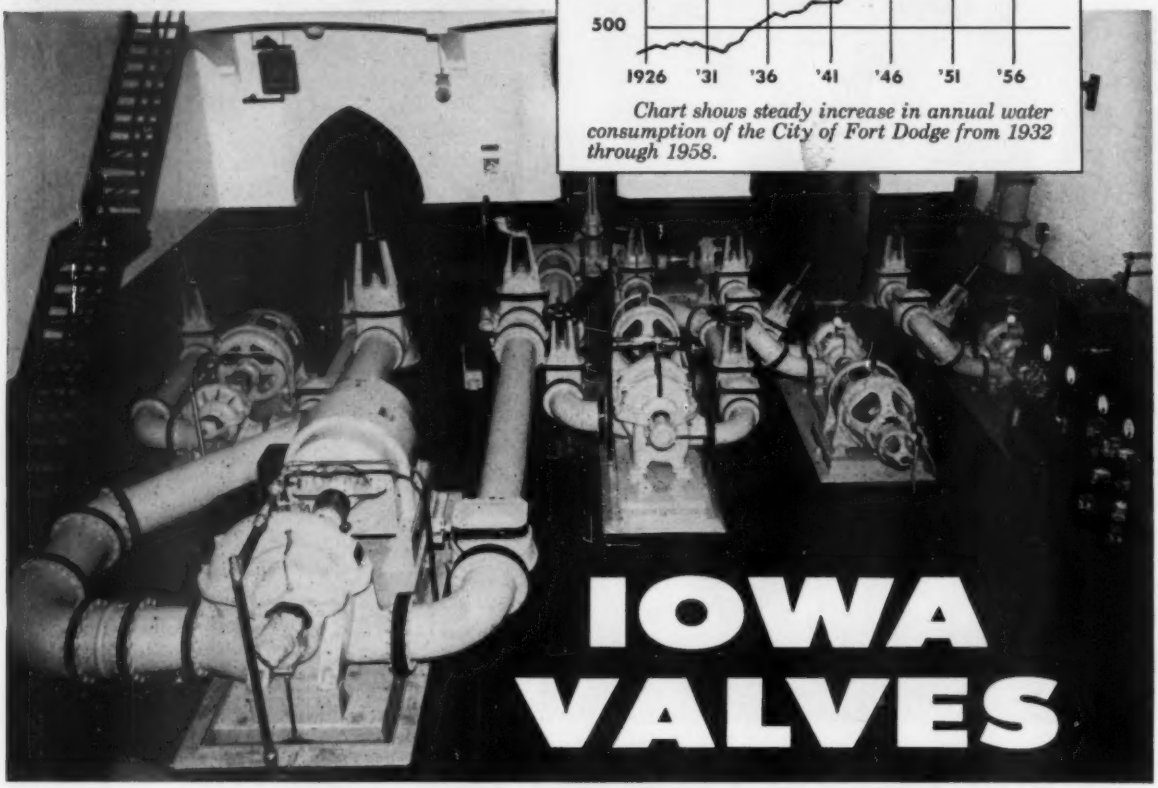


Chart shows steady increase in annual water consumption of the City of Fort Dodge from 1932 through 1958.

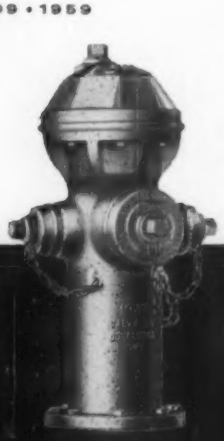


...enable Fort Dodge waterworks to meet 457% increase in demand in 26 years

OUR 50th YEAR
1909 • 1959

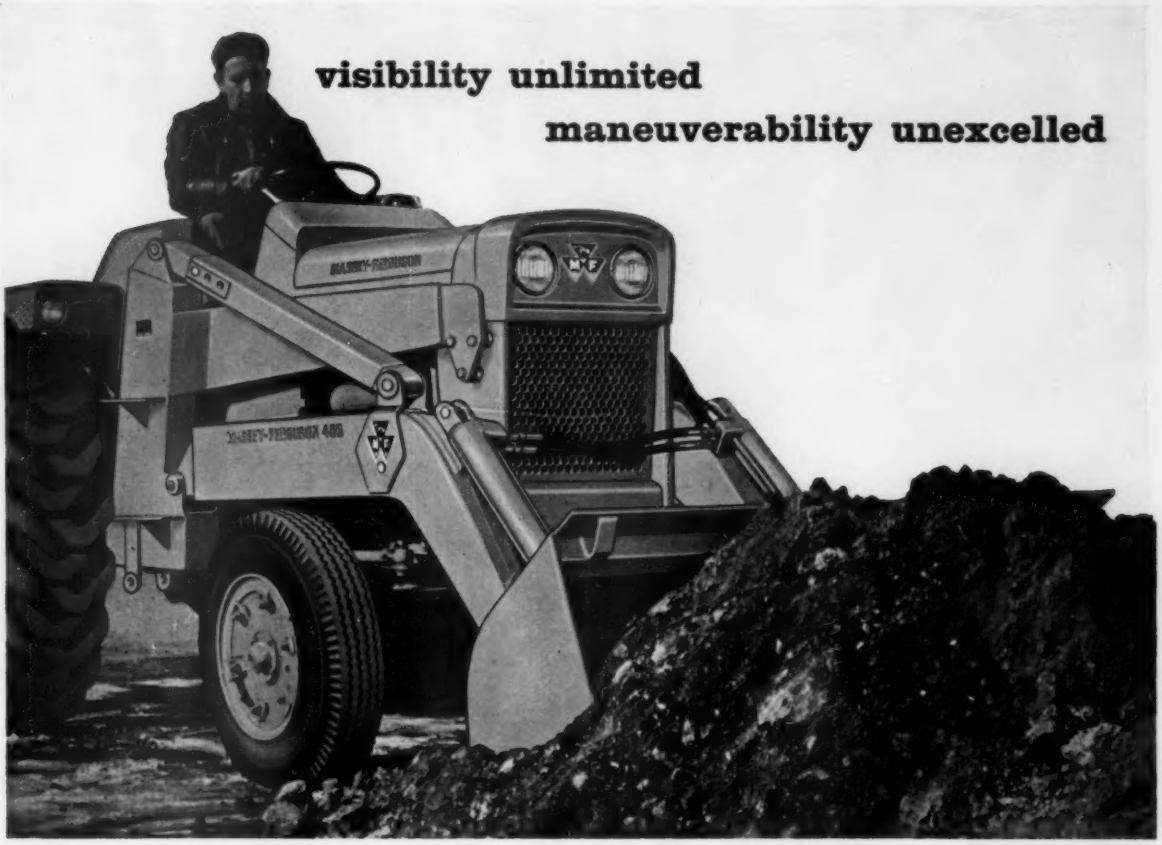
For over 26 years, IOWA Valves have played an important part in meeting the water needs of the growing City of Fort Dodge, Iowa. For half a century IOWA and IOWA service have been growing to meet the needs of towns and cities from coast to coast.

Few manufacturers can match IOWA in the wide variety of valves and accessories for every type of service. IOWA valves meet the most exacting specifications for flow control in distribution and fire protection systems, sewage treatment and water filtration plants. It will pay you to call in an IOWA man before placing your order.



Let us send you details on Iowa's complete line of valves and hydrants

IOWA
VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.
Oskaloosa, Iowa



new MASSEY-FERGUSON 406

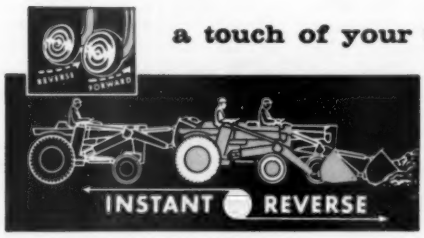
the BIG CHANGE *in tractor shovels*

Have loading power at your finger tips. . . speed and directional control at a touch of your toe. . . and see wherever you go — that's why this all-new, streamlined Massey-Ferguson 406 is the BIG CHANGE in tractor shovels.

Instant Reversing, all-around visibility, full 1 cu. yd. bucket, lets you get more loads, bigger loads, and outperform larger, more expensive machines. And, you can handle the precision, utility jobs more efficiently and economically. Low-thrust point, high reach, multitude of integrated attachments including the famous Davis Backhoe make it the most versatile, profit-producing rig in its class.

IT'S WORTH BUYING!

For a real eye-opener, let your Massey-Ferguson Industrial Dealer demonstrate this "years ahead" tractor shovel for you. Write for his name and illustrated literature.



a touch of your toe — away you go — forward or reverse

MASSEY-FERGUSON INDUSTRIAL DIVISION

Block 1000 South West Street • Wichita 13N, Kansas

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

More For Your Money

New HOMELITE 3000 Watt Generators

You get more, you save more, with the new Homelite Model 8A Generators. You get more production power. Weighing only 140 pounds, complete with built-in gasoline engine, the 8A gives you 3000 watts. You get the power you need for electric saws, drills, floodlights and other labor-saving tools. You get the power you need for more work in fewer man-hours, quickly and easily.

Just as important, you get more performance with less maintenance and less operational trouble with the new Homelite Model 8A Generators. No rheostats or other controls to operate. Voltage is automatically controlled within four percent from no load to full load. There are no DC brushes. No commutator. No DC windings on armature. No trouble makers to slow down work and run up fix-it costs.

Three models are available . . . 115 volt and 115/230 volt, both 60 cycles, AC plus the 180 cycle model for running most efficient high cycle tools. Ask for free demonstration soon. The sooner the better for you.

Homelite factory branches are located throughout the country. Your nearest one is as near as your phone. Call them or write for convincing demonstration or rapid service in any way.

HOMELITE
CARRYABLE
GENERATORS PUMPS • CHAIN SAWS BLOWERS

HOMELITE • A DIVISION OF TEXTRON INC., 108 RIVERDALE AVE., PORT CHESTER, N.Y.
In Canada — Terry Machinery Co., Ltd.

Lightweight, easy-handling aluminum signs go up fast. While R. J. Colpitts looks on, foreman Omer Lane easily installs this sign in only 10 minutes. Alhambra's signs are fabricated from Kaiser Aluminum blanks with reflectorized sheeting by the Mask-Off Company of Monrovia, California.

"For our money, only cost-saving aluminum signs will do!"

... says R. J. Colpitts, Traffic Engineer, Alhambra, California

"We like aluminum traffic control signs because we are able to get the type of sign we want—with both initial and long range savings over other materials," reports R. J. Colpitts, Traffic Engineer, Alhambra, California.

"And we know we'll save plenty on maintenance and replacement costs, as well. With rustproof aluminum, the oxidation problem is reduced to an absolute minimum. There's no need for us to protect the edges and back surfaces of our signs.

"What's more, because aluminum signs are so easy to work with, they give our sign shop greater flexibility. We can tailor-make our sign program to suit our particular needs with little added equipment.

"No doubt about it. With us, it's aluminum traffic control signs all the way!"

KAISER ALUMINUM

THE BRIGHT STAR OF METALS

Let us make a bid. For expert service on money-saving aluminum signs, call the manufacturer, fabricator or Kaiser Aluminum sign blank jobber near you.

Berkeley, Calif.
Hawkins-Hawkins Co., Inc.
Charlotte, Mich.
Paul H. Callender Co.
Chicago, Ill.
Bell & Gustus, Inc.
Federal Sign & Signal Corp.
Spencer, Ind.
Stello Products
Cleveland, Ohio
Osco Steel Co.
U. S. Steel Supply
Clinton, Mass.
Standard Sign & Signal Co.
Dallas, Tex.
All Quality Sign & Mfg. Co.
Elmira Heights, N. Y.
Eastern Metals of Elmira, Inc.
Evanston, Ill.
Northwest Screenprint Co.
Grand Prairie, Tex.
Sargent-Sowell, Inc.
Houston, Tex.
Western Sign & Supply Co.
Indianapolis, Ind.
Midwest Fire & Safety Equipment Co., Inc.
Lancaster, Pa.
John I. Nissly Co.
Little Rock, Ark.
Moody Equipment & Supply Co.
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Miami, Fla.
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Lyle Signs, Inc.
Monrovia, Calif.
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North Tonawanda, N. Y.
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Wiegand Mfg. Co.
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James P. Flynn Co.
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Kresky Signs, Inc.
Philadelphia, Pa.
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Sacramento, Calif.
The Dosch Co.
St. Louis, Mo.
Parco Supplies
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Gopher Stamp Co.
Tacoma, Wash.
Traffic Control Signs Co.
Wichita, Kan.
Miro-Flex, Inc.
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Send now for free brochure. Gives cost-saving facts and availabilities on traffic control signs made of Kaiser Aluminum. Mail coupon today.

Kaiser Aluminum & Chemical Sales, Inc.
Dept. TS-17, 1924 Broadway
Oakland 12, California

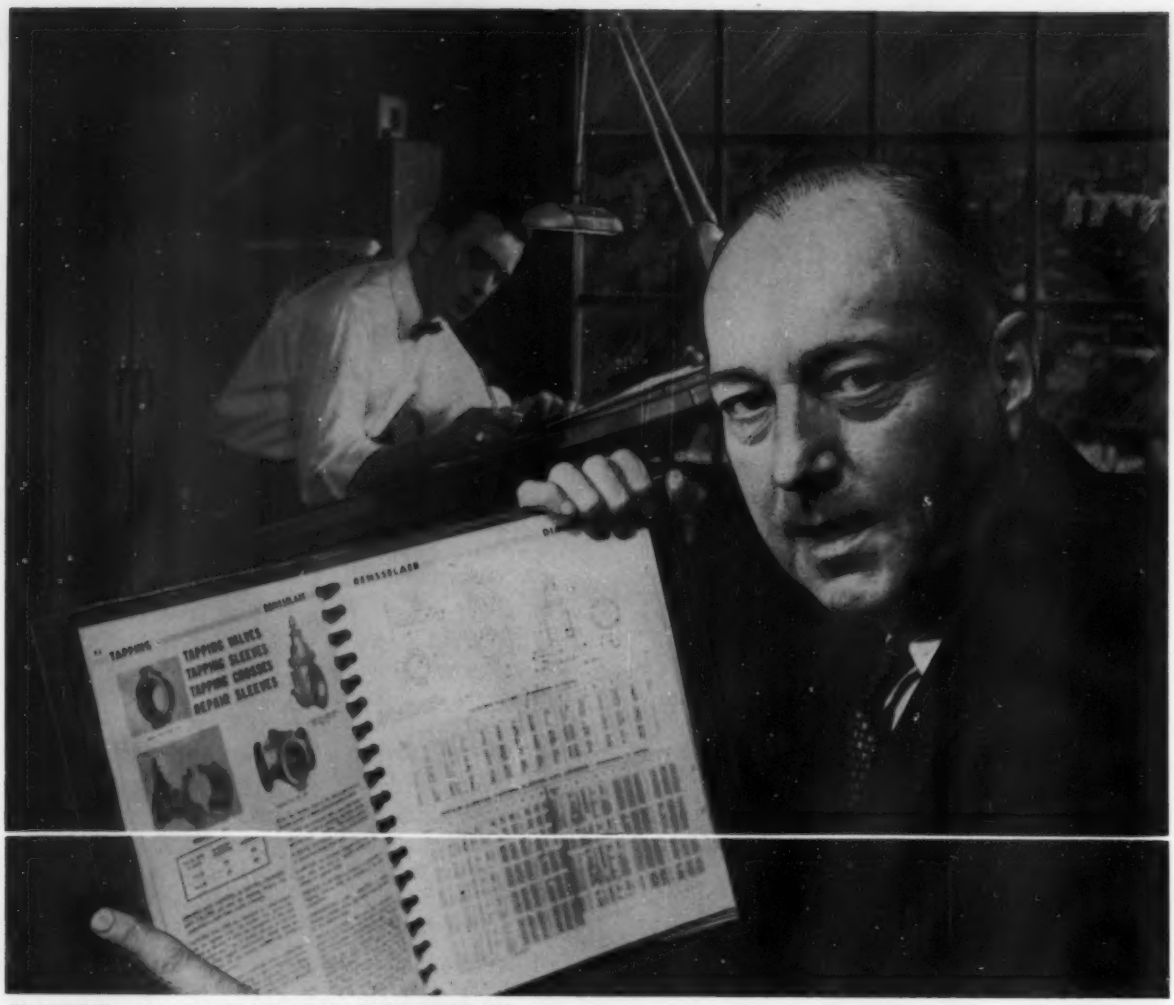
☐ Please send me your free aluminum sign brochure

☐ Please have a representative call in person ☐ phone

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____



SAYS A CITY ENGINEER:

"L&R gate valves pass our 3-point test!"

Many engineers and waterworks superintendents ask themselves this question before specifying a particular gate valve:

"Does it operate easily, efficiently and dependably?"

Ludlow gate valves and Rensselaer gate valves meet all three of these basic requirements. They give you watertight closure through years of dependable, trouble-free performance. Simple in design and easy to operate, they exceed A.W.W.A. specifications.

FOR EASE AND DEPENDABILITY use Ludlow and Rensselaer tapping sleeves and valves for branchline connections to main lines under pressure.

WRITE FOR THE L&R GATE VALVE CATALOG, showing the most complete selection of outstanding design features available today. There are sizes from 2" to 72", plus custom designing for special applications.

LUDLOW & RENSSELAER
VALVES AND HYDRANTS

THE LUDLOW VALVE MANUFACTURING CO., INC., TROY, N. Y. – SINCE 1861

clear to the bottom!

Anyone faced with the problem of keeping swimming pools free of unsightly, slippery algae will welcome this news about a proved algae-killing chemical. HYAMINE 2389 will control the common strains of algae found in swimming pools . . . and with regular treatments keep the water, walls and walkways clean and clear. Formulations based on this chemical are also excellent disinfectants for swimming gear and locker rooms. Write for names of suppliers and additional information.

HYAMINE *is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.*

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

HYAMINE 2389

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

PROMPT SHIPMENT

Inquiries and orders solicited.

NORTHERN GRAVEL COMPANY

Muscatine, Iowa

P.O. Box 307 Amherst 3-2711

STUDY UNITED FEATURES FOR "GRADE A" INVESTMENT!

Your budget requires long-term value for every dollar allocated — products must stand up for years. The next time you consider waste receptacles, remember this: United units withstood 100° sizzlers, snowstorms, scuffing and use by a multi-million New York City populace for over 20 years — and simply needed one coat of paint to look brand new! Let sturdy United units give sanitation help to your schools, colleges, institutions, and municipality. Catalog on request.

UNITED METAL CABINET CORP. UNITED

8 East 36th St., New York • Factory: Pottsville, Pa.
Midwest Sales Office: 666 Lake Shore Drive, Chicago, Ill.
West Coast Distributor: Shore-Calnevar, Inc., 2881 East Pico Blvd., Los Angeles, Calif.

Custom Engineered Waste Receptacles

time *city managements' greatest single . . . cost factor!*

control it with

Lathem

TIME RECORDERS
TIME STAMPS
WATCHMAN CLOCKS

You can eliminate time leaks and increase the efficiency of all departments with a Lathem machine. Built for a long life of care-free service, Lathem machines are especially designed and engineered to provide for ALL of your time recording needs.

Just check this long list:

1) *payrolls* 2) *parking lots* 3) *garages* 4) *public buildings and watchmen's rounds* 5) *dating and numbering papers* 6) *mail arrival* 7) *booking and releasing prisoners* 8) *records of sequence handling* 9) *entry of important records and deeds and many others.*

Write, wire or call for complete information.

LATHEM TIME RECORDER COMPANY

82 Third Street, N.W. Atlanta, Georgia

GENTLEMEN: I'd like to hear more about the fabulous NEW Lathem Time Recorder.

NAME_____ TITLE_____

DEPARTMENT_____

ADDRESS_____

CITY_____ STATE_____

Plan NOW!

. . . for BARE PAVEMENTS ALL WINTER!

Don't get caught short by an early blast of winter that ices up your roads. Plan to use Solvay® Calcium Chloride at money-saving *bulk* rates*. It can be stored alone, or mixed with salt, outdoors under tarpaulin covers, in indoor sheds or covered bins. This method helped leading turnpikes achieve "no shutdown" records—despite severe, *unexpected,* weather conditions!

Bulk handling of Solvay Calcium Chloride is a one-man operation, both in loading and application. It can be used economically by large and small highway departments.

Calcium chloride-salt mixtures are effective at all temperatures and humidities. While salt's best range is 25-32°F., calcium chloride speeds melting at all temperatures, even down to below zero . . . provides the moisture salt needs to act. Calcium chloride liberates heat as it melts ice, which helps salt work faster. When you combine the two, applications can be lighter and less frequent. This reduces chemical consumption and lowers cost.

For *instant* skidproofing of icy surfaces, treat abrasives with Solvay Calcium Chloride. They hold fast in wind and traffic at all temperatures.

**Also available in moistureproof bags.*

Don't delay! Write us now. Request "ice control data". If you are interested in applying bulk handling to your set-up, ask for a Solvay representative to call. No obligation!

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast.

Concrete streets like Crescent Drive are a joy to motorists

425 blocks paved in 8 years

Duncan, Oklahoma, chose concrete to get streets good for 50 years and more!

Cities and villages everywhere are finding that concrete is the popular and economical answer for street improvement programs. Duncan, Oklahoma, for example. Early in 1951 its Chamber of Commerce appointed a committee. They worked with the mayor and city commission on a master paving program for Duncan streets.

They studied pavement costs and life expectancy, learned that concrete is the one pavement with load-bearing strength that can be computed mathematically to match future traffic, last 50 years and more. Records showed that upkeep costs for concrete run as much as 60% lower than for asphalt.

All this was explained to Duncan property owners at special meetings. And with enthusiastic approval from cost-conscious taxpayers, the committee's decision was unanimous for concrete! Since then it has been concrete all the way for Duncan.

City officials and Duncan citizens are proud of their modern concrete streets . . . clean, bright and attractive. Smooth-riding. And with the extra safety of concrete's skid-resisting surface and high night visibility.

Thrifty concrete is the preferred pavement for streets everywhere, with true economy for taxpayers, both today and in the future. If you are planning a street paving program, write for free literature—technical and non-technical. Distributed only in the U.S. and Canada.

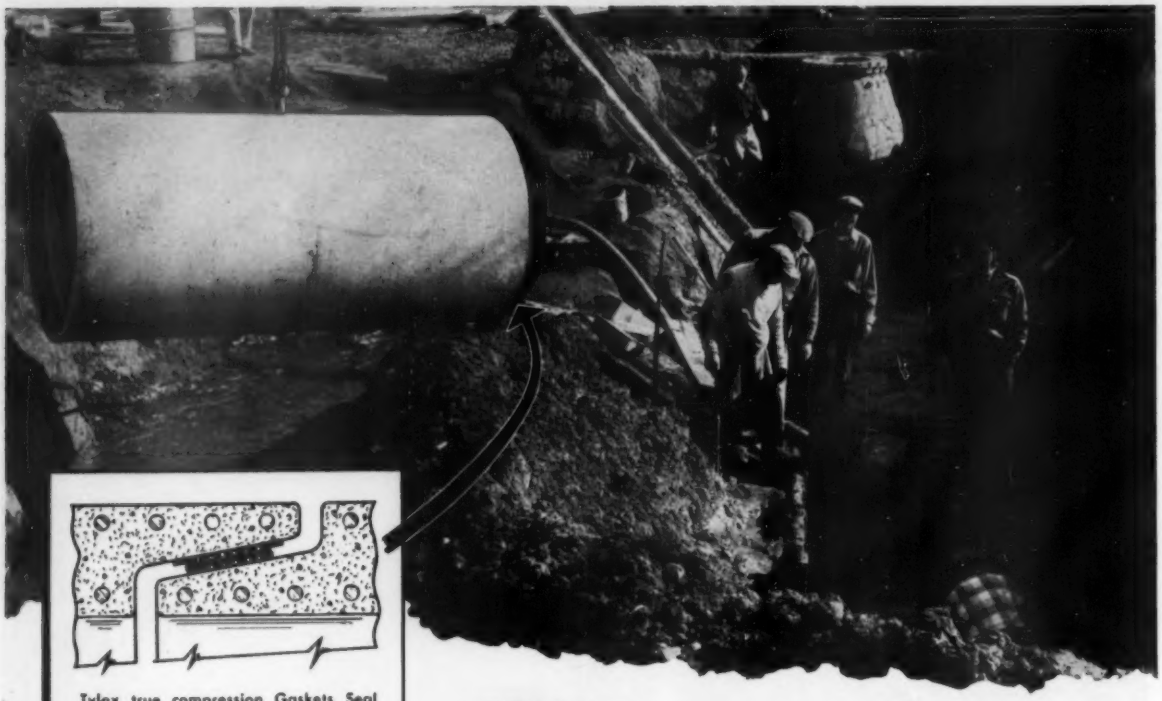
PORTLAND CEMENT ASSOCIATION

Dept. A8-4, 33 West Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of concrete

MODERN Concrete

Keeping new sewer lines from leaking...



Tylox true compression Gaskets Seal Water-tight for the life of the pipe itself.

TOUGH TYLOX *FLEXIBLE* PIPE GASKETS

...specified to whip tough sewer installations

This view of the Millcreek Sanitary Sewer Project clearly shows some of the tough conditions met... high water tables... flooded trenches... sandy, unstable soils.... It shows, too, how TYLOX Flexible Rubber Gaskets "join up" with sewer pipe to offset *tough* installation problems with fast pipe-laying, providing at the same time, the all-important water-tight joints necessary to meet tough infiltration specifications. When pipe is coupled with TYLOX Gaskets, trench water does not slow up the work, shifting soils do not endanger the Gasket, and the acid-resistant *compression* seal provides leak-proof joints for the life of the pipe itself.

The project, by Millcreek Township Sewer Authority, Erie County, Pa., is a $4,000,000-plus project including 45 miles of sewer laterals, trunks, mains and pumping stations. Engineering is by Consoer, Townsend & Associates, Consultants, Chicago, Ill., and Fred Gorenflo, Resident Engineer, Erie, Pa. Contractors are Berlanti Construction Co., Harrison, N. Y., and Milano Construction Co., Erie, Pa. Pipe using TYLOX Gaskets was furnished by Concrete Pipe Company of Ohio.

5129

Whether you are planning pipe lines of B & S, T & G or Recessed pipe, of any size, there's a TYLOX Rubber or Neoprene Gasket in the Hamilton Kent family of **flexible** true compression Pipe Joints to meet your specifications. Write for engineering details.

HAMILTON KENT
MANUFACTURING COMPANY
KENT, OHIO
427 West Grant St. ORchard 3-9555

CANADIAN PLANT: 10 BRUSSELS ST., NEW TORONTO, ONT., Phone CLifford 1-2494

Good Roads MACHINERY

LEAF LOADER

Your low-cost answer to leaf and litter removal

The Good Roads Leaf Loader provides economical elimination of messy accumulations of leaves and debris on sidewalks, roads, parks, cemeteries, and other public grounds. It is trailer mounted, ready to hitch to any truck. Powerful fan, driven by 4-cylinder industrial engine, sucks up wet or dry leaves and litter, blows them into bed of towing unit. Fixed snout provides automatic pickup of leaves in 30" path, and a flexible rubber intake hose is furnished for wide-area pickup and hard-to-reach places. Flexible discharge hose permits maneuvering of truck and leaf loader during operation.

For complete details see your Good Roads distributor or write:

Good Roads MACHINERY **GOOD ROADS MACHINERY Corp.**
MINERVA, OHIO

Now widely used

in municipalities and institutions across the country as the most economical way to

stop odors

in sewerage disposal plants, communities and institutions

AIREACTOR SPACE DEODORIZER
NATURE'S PRESCRIPTION FOR FRESHENING AIR

gives you a *safe, non-toxic, non-flammable space* deodorizer.

It contains glycols used in combatting air-borne bacteria . . . effects a complete re-alignment of odor molecules . . . leaves the air odor-free and with a distinctive garden freshness.

Original equipment for all applications. You can use it indoors or outdoors to eliminate air pollution.

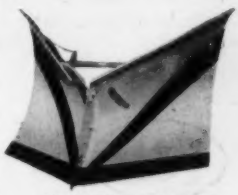
Write today for helpful free information on how Aireactor can solve *your* odor problem.

Aireactor Corp., 271 Madison Ave., New York 16

WAUSAU 3-WAY Plow and Truck Grader Ice Blade as furnished U.S. Air Force

WAUSAU EQUIPMENT IS BUILT TO "take it"

WAUSAU has maintained its leadership since the pioneer days of snow plowing through constant improvement in manufacturing techniques, the use of alloy metals and by closely engineering snow plows to the added power and speed of new trucks. The name WAUSAU on your snow plow will always remain a symbol of quality.

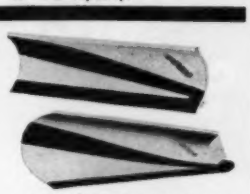


VEE TYPE PLOWS

The severe storms of last winter again prove the Vee Plows to be indispensable. There are 14 Models of WAUSAU Vee-Type Plows to fit anything from a farm tractor to a 54,000 GVW truck.

HIGH SPEED BLADES

Now available in discharge heights from 4' to 7' in a wide selection of shapes . . . designed for trucks of 2 tons to 15 tons capacity.



TRIP BLADE PLOWS

Trip Blade Snow Plows are practically standard equipment for city use—but only WAUSAU builds Trip Blades with simple, self-cleaning, readily adjustable compression springs . . . 12 Models available for almost any motive power.

SNOW PLOWS . . . 55 MODELS — 9 STYLES

TRUCK GRADER ICE BLADE

Truly a versatile year 'round maintenance unit . . . maintains, cuts and grades gravel, dirt roads, etc. . . . . planes, breaks, removes ice and hard packed snow . . . full hydraulic cab control.

MATERIAL SPREADERS

Quick action, low cost self-contained unit . . . sturdily built . . . 8' to 20' spread width — hopper capacity 2 cubic feet.

Write

today for the name of your nearest WAUSAU distributor who will assist you in getting year 'round maintenance equipment to fit your needs.

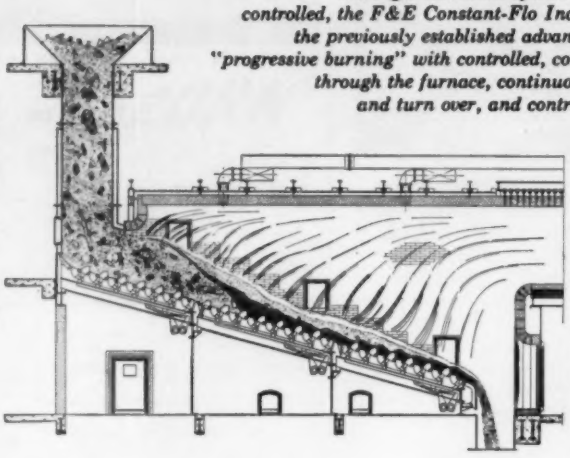
WAUSAU IRON WORKS WAUSAU, WISCONSIN
Pioneer Snow Plow Builders
Truck Grader Ice Blade and Material Spreaders

F&E Constant-Flo Incinerator Stoker

Companion Stoker—F&E Multi-Cell Incinerator Stoker

In addition to the F&E Multi-Cell Incinerator Stoker, the Flynn and Emrich Company now offers for those municipalities desiring the continuous flow type of operation, the F&E Constant-Flo Incinerator Stoker, using the latest application of our tried and proven F&E stoker principles. Write today for brochure or plans.

Through automatic operation, electronically controlled, the F&E Constant-Flo Incinerator Stoker combines the previously established advantages of F&E "progressive burning" with controlled, constant flow of material through the furnace, continuous agitation, break up and turn over, and controlled residue disposal.



RESULTS—

1. *Reduction of plant operating personnel to absolute minimum,*
2. *Higher rates of destruction with less air pollution,*
3. *Controlled furnace temperatures with much lower furnace maintenance than previously attainable, and*
4. *Refuse reduced more thoroughly at lower cost.*

F&E

FLYNN & EMRICH CO. 301 North Holliday Street, Baltimore 2, Md.

Where you want nothing to grow

SS WEED-KILLER

Gets them *fast*
Gets them *all*
Keeps them *off*

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . . Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

Write for free, up-to-the-minute booklet on weed control. See your Dolge Service Man

dependable DOLGE WESTPORT, CONNECTICUT

How Best to lay down a perfect Stripe with our New #458 Striping Machine. *(Here Illustrated)*

Price complete as shown with 15 gallon Enamel Tank $190.00 Plus the shoe.

2" Shoe	$15.00	4" Shoe	$20.00
3" Shoe	$17.50	5" Shoe	$22.50
	6" Shoe	$25.00	

All Rolling Surfaces—Perfectly Ground. All Size Shoes Interchangeable without loosening or tightening a bolt or nut.

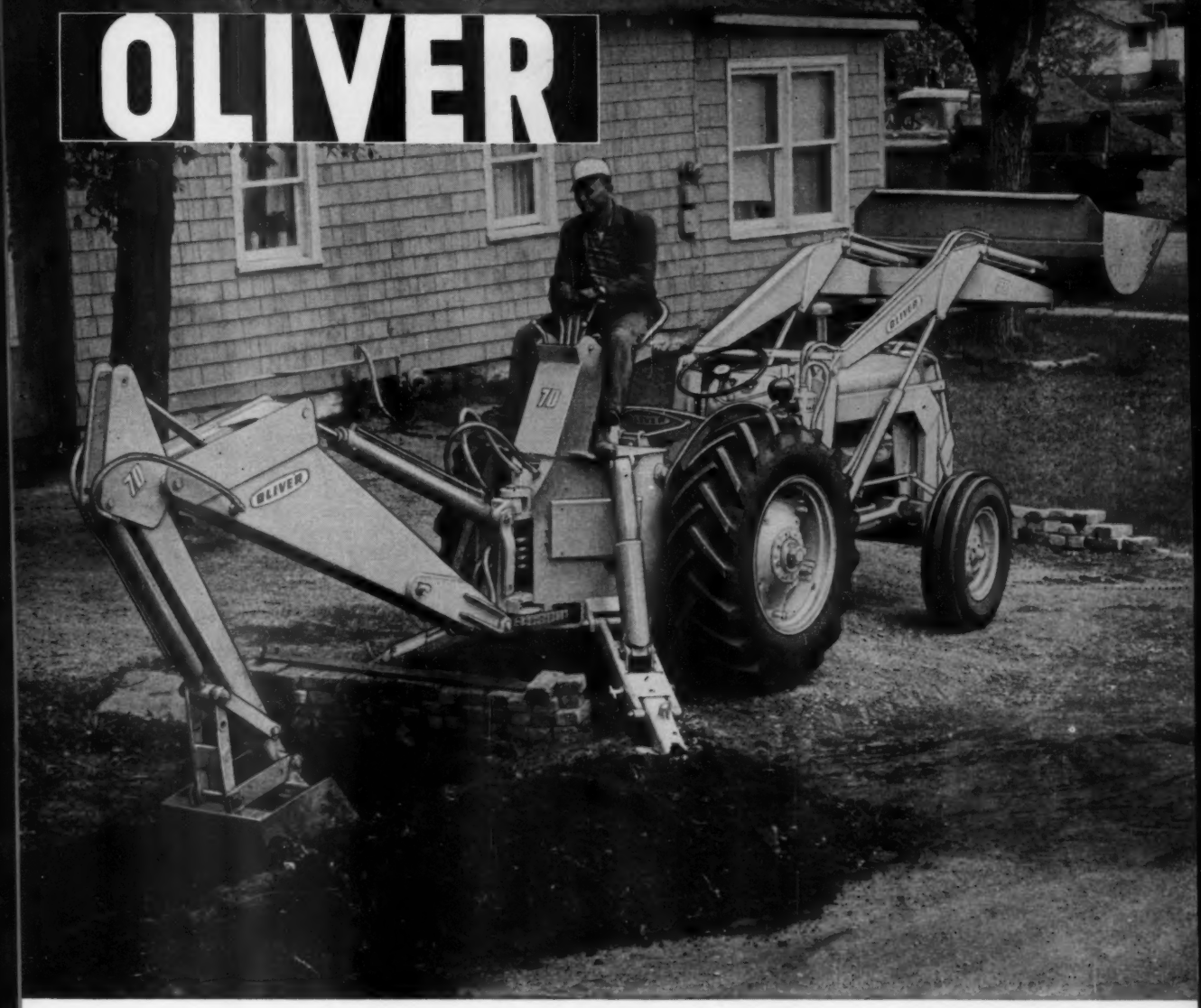
The #458 Fence Painter Striping Unit is the Best, Simplest, most complete, and flexible Striper made at any price.

Write us NOW for your free copy of our 1959 Fence Painter Products catalogue.

FencPainteR Division

4911 South Racine Avenue, Chicago 9 Illinois

OLIVER



TEST ITS WORK CAPACITY...COMPARE ITS COST...OLIVER 550

NEW OLIVER 550—today's newest utility tractor—with engine and built-in hydraulic system matched to perfection. It's fast, agile, full-powered. Its compact size lets it get in and out of tight spots quickly. Gas or diesel; independent PTO; six forward speeds, two reverse. Offers all big-tractor features at low price.

This new work-saving machine is *just right* for literally hundreds of jobs for municipalities, utilities, water and sewer departments. And you can't beat the combination of the Oliver 550 wheel tractor with the new backhoe and loader.

IT'S POWERFUL—with the highest ratio of h.p. to weight of any backhoe on the market. It delivers a 9000-lb. breakaway action, digs to 12′, loads to 8′8″.

IT'S FAST—with completely hydraulic operation, 188° arc of swing, fast work cycles, greatest production at lowest cost. Operator can quickly change from backhoe to loader by merely changing seats.

TRY IT! See for yourself how much better and faster this rig works on your jobs...how much less it costs. For free tryout, without obligation, call your Oliver distributor.

OLIVER **THE OLIVER CORPORATION**
Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

FINANCIAL PROTECTION

for your most vital service

Water . . . your community's most important single service . . . must be protected by sound financing. The only *sure* protection is the sustained accuracy of your water meters.

If a meter becomes inaccurate, it starts to give away revenue. In home after home, leaks and carelessness go scot-free. The warning voice of the meter is gradually stilled, and wanton waste soon uses up your available water supply.

Worse yet, lack of proper income makes it impossible to build new capacity without tremendous losses. Water shortages soon become critical. Your city's development program soon dies . . . of thirst.

How guard against this? Set up a good meter testing and repair program. Pick meters that stay accurate longer. Talk to your meter superintendent . . . the man whose efforts guard your water supply. Ask which brand of meter consistently gives highest sustained revenue . . . with lowest repair and depreciation. We sincerely believe your answer will be "Trident."

NEPTUNE METER COMPANY 19 West 50th Street • New York 20, N. Y.

NEPTUNE METERS, LTD. 1430 Lakeshore Rd. • Toronto 14, Ont.

Branch Offices in Principal American and Canadian Cities.

neptune

AUGUST 1959

The American City

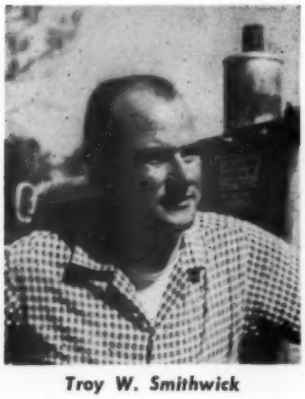
Bulk cement is applied to the street with a Flynn belt-type spreader. This is done after construction of curb and gutter and shaping of the roadway.

A sheepsfoot roller works behind the pulvimixer to compact the soil cement thoroughly. Water is added during the mixing process.

We Switched to Soil Cement...

and gave our people strong, long-lived residential streets at $1.50 per square yard

By TROY W. SMITHWICK
City Engineer
Sylacauga, Ala.



Troy W. Smithwick

Streets paved with soil-cement look good to Sylacauga's 15,000 citizens. They look even better to the city administration charged with the task of making every dollar work overtime. Like people everywhere, our citizens wanted their streets paved. Also like most people, they weren't too particular about the type of material used or the techniques employed in putting it down. However, this indifference to the type of material used did not apply to Sylacauga officials. The city administration, led by Mayor Ed Howard, took a hard look into the future. They wanted to put down streets with "staying power," at a reasonable cost. That's where the decision was made to use soil-cement.

Sylacauga has a long record for constructing quality streets. We are still using, very successfully, concrete streets laid in the 1920's. But for our current paving program, designed for light residential traffic, we turned to soil-cement.

That was in 1953. Every year since then we paved an average of five miles of streets and now have more than 25 miles of first-class soil-cement streets. Our program last year totalled approximately 46,000 square yards, or a little over three miles. This year we will put down around 50,000 square yards of soil-cement base. The average width of our streets is 26 feet, with the thoroughfares running up to 30 feet.

Most of the work is done by contract, and so far four contractors have participated. Our own municipal forces have also taken part in the work.

Fortunately, the city owns all public utilities except telephones. Before paving, we connect all utility lines—water, gas, sanitary and storm sewer—to all vacant lots regardless as to when the lot may be built upon. This eliminates tearing up the street after it has been paved whenever a house or building is constructed.

Typical Program

A typical paving program starts with grading, placing of concrete curb and gutter and construction of driveway turn-outs. Shaping is

Following compaction, a Caterpillar motor grader shapes the base to final crown and grade.

Tractor-drawn pneumatic roller finishes base course before application of cut-back emulsion curing agent.

accomplished to final grade prior to placing cement. Portland cement is then added by means of a spreader.

On each project the soil is tested to determine the proper amount of cement required for a good job. Soil classifications vary, but our experience shows that 10% cement by volume is adequate for all soils found in Sylacauga.

The roadbed with cement on top is then scarified to proper depth followed by thorough mixing, usually with a self-propelled Seaman-Andwall pulvimixer. Sufficient water is added during the mixing operation for proper compaction.

We use the same procedure for clay gravel or sand clay base. Standard curing is done with a cut-back emulsion to which the asphaltic wearing surface is added at any convenient time after seven days. We use 6 inches of soil-cement base covered with a 1½-inch asphaltic wearing surface that overlaps the edge of the gutter. After experimenting with various types of asphaltic wearing surfaces, including single surface and double surface, we have settled on the single surface of plant mix only.

Equipment used on our soil-cement paving projects consists of the following:

- **1 Motor grader**
- **1 Double drum sheepsfoot roller**
- **1 Multiple-wheel pneumatic tire roller**
- **1 Pulvimixer**
- **2 1,000-gallon water sprinkler trucks**
- **2 Pneumatic tire tractors**
- **1 Belt-type bulk cement spreader**
- **2 Dump trucks for hauling cement**

Average Cost

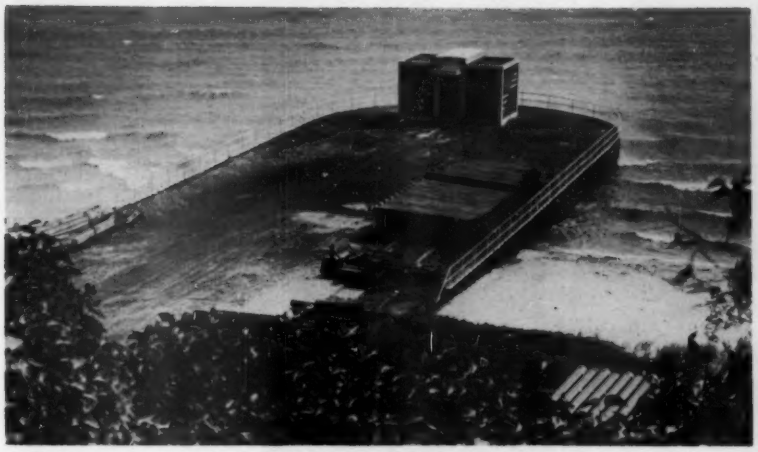
Approximate cost for street paving work as described is as follows: soil-cement base, including mixing and water—72 cents per square yard; preliminary shaping—8 cents per square yard; plant mix surface (150 pounds)—70 cents per square yard. Curb and gutter run about $1.60 per lineal foot.

When the soil-cement street paving program started in 1953, it was the result of a petition for paving by property owners. At that time the administration decided to finance the work with general obligation public improvement bonds. Cost of the work is then assessed to the abutting property owner with the city picking up part of the expense.

Experience has brought out several items that may be helpful to others. First, it is best to place soil-cement during the spring or fall, especially in hot climates such as ours. The material sets up fast in hot weather and, due to increased evaporation, requires more water in order to compact to proper density.

Second (and this point of course, pertains to all types of pavement though it is not always given proper attention), it is necessary to properly back-fill and thoroughly compact all ditches for utility work; this is important to prevent settlement and failure later.

End result—a smooth surfaced street that will give long service at minimum service cost.



Collector A, shown as built in 1945, was 150 feet from shore in Lake Michigan. With the lake receding, the shore is now east (or on the other side) of the collector.

Collector C during the test stage. Its proximity to the lake can be seen by the shoreline in the foreground.

Manitowoc, Wis. takes advantage of favorable soil conditions to supply citizens with . . .

Naturally Filtered Lake Water

By **R. E. CANNARD**
General Manager
and Chief Engineer
Manitowoc Public Utilities
Manitowoc, Wis.

You don't need filters if conditions are right and such is the case at Manitowoc, Wis. Fifteen years of experience with two Ranney collectors along the shore of Lake Michigan proved so successful that a third unit was installed this past winter and placed in service last April 16th. This unit increases our capacity by 8 mgd.

Our three wells actually supply us with naturally filtered Lake Michigan water. The collector pipes penetrate small deltas of heavy gravel and bolders left by the retreating ice sheet. These deltas, overlaid with clay or other non-water bearing material, are in good contact with the lake and therefore form an ideal infiltration medium.

Collectors A and B were constructed in 1944. Collector C is the new installation. Basic data appear in Table I on the next page.

Each collector contains two pumps, one rated at 2 mgd and one at 4 mgd. Both pumps in the new collector are Peerless units with Ideal electric motors. The older pumps consist of two Layne units, one Peerless and one Sterling. Space has been provided for a third

This interior view of collector C shows workmen jacking one of the collector pipes into position.

The 3-million-gallon reservoir and pump station was originally planned as part of a filtration plant. Instead, Manitowoc decided to use the Ranney System.

pump in the new collector as well as in the larger of the two existing collectors. We can also control output by means of gate valves on the two old collectors and Rockwell butterfly valves with hand operated Limitorque controls on the new collectors. A Sparling Main Line meter on the discharge line of each collector measures and records pumpage.

We do chlorinate, applying the chemical at the pump suction. Equipment consists of a Fischer and Porter chlorinator in collectors A and B and a wall-mounted Wallace & Tiernan unit in collector C.

We operate all pumps manually as needed, using employees of our electric utility for this purpose. Discharge is directly into the distribution mains which also connect to a 1½-million-gallon elevated tank and a 3-million-gallon ground storage reservoir. The latter was to be part of a filtration plant planned prior to installation of our first two collectors. This reservoir is filled during the night and the water used during the day as needed. Pumping equiment consists of one 4-mgd steam turbine driven pump and one 4-mgd and one 2-mgd electric driven pump—all American Well Works units. Steam is obtained from our electric utility generating plant located just across the street from the reservoir and pump station.

Our electric utility meter readers also read the 8,176 water meters installed as of December 31, 1958. Manitowoc is 100% metered.

We lay our own mains, and for this work, plus maintenance and repair of the distribution system, we employ 11 men. This includes one meter-installation-and-service man. The electric utility engineering section does engineering and design for the water department.

As of the end of 1958, our distribution system comprised over 517,800 feet of mains up to 24 inches in diameter. Each year we add approximately three miles of new mains.

Total pumpage for 1958 came to 1.87 billion gallons. Our maximum daily pumpage of 10,259,600 gallons occurred on July 24th. Total production cost for last year amounted to $24.89 per million gallons. Table II lists our present water rates.

Table II

Monthly Water Rates

First	200 cu. ft.	included in minimum charge
Next	800 "	" 14c per 100 cu. ft.
Next	14,000 "	" 10c per 100 cu. ft.
Over	15,000 "	" 5c per 100 cu. ft.

Minimum Bill

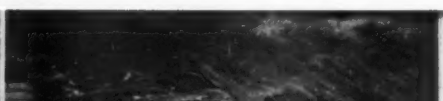
⅝"	meter	$ .55	per	month
¾"	"	.65	"	"
1"	"	1.00	"	"
1½"	"	2.00	"	"
2"	"	3.00	"	"
3"	"	5.00	"	"
4"	"	8.00	"	"
6"	"	16.00	"	"
8"	"	30.00	"	"

The electric utility does not work for the water department without charge. Engineering design, pump operation, control and electrical repair is all charged on an actual time basis. Meter reading expense is prorated on a 50-50 basis between the two utilities while office expense is prorated 60% to electric utility and 40% to water department.

We also financed the new collector internally, paying part of the cost from water department funds and the balance by means of a loan from the electric utility. The total cost of collector C amounted to slightly more than $336,000. This includes an expenditure of some $90,000 for a 24-inch main connecting the water supply with the existing distribution system.

Table I

Collector	Depth in Feet	Diameter in Feet	No.	Collector Pipes Diameter	Length	Capacity
A	66	13	10	8 in.	541 ft.	5 mgd.
B	86	13	21	8 "	448 "	10 "
C	112	13	7	12 "	1,036 "	8 "



General offices had this confused appearance . . .

. . . now look neat and efficient like this.

An Old Village Hall Spruces Up

By **JOHN E. SEELEY,** Village Clerk, Skokie, Ill.

We had considered razing the old municipal hall at Skokie, Ill. in the Evanston-North Shore district, and rebuilding from the ground up. However, when the Police Department moved from its former quarters in the hall to a new building, the Village Board decided to remodel and modernize the old but well-built structure. The general policy was to departmentalize the branches of the village government so that they might operate more efficiently and more pleasantly for office personnel and taxpayer visitors.

The basement was converted from a storage section to a functionally adequate Civil Defense area. The first floor general office was subdivided into a Building Department, Treasury, Superintendent of Public Works, Billing, Clerk's office, and an office for the village manager. Alterations also provided an ample lobby. The second floor was altered for the village trustees' conference room, Weights and Measures, the Health Department, and a lounge for women employees. The old council room was enlarged and made comfortable for the public as well as council members.

In most respects the effect of the interior is now that of a contemporary structure. Walnut panelling and trim characterize the first and second floors. Oak is used in the basement. Much attention was given to working conditions with stress upon adequate glare-free light in sections where visual tasks are handled. Venetian blinds and drapes soften sky-glare at the windows and a general level of 100 footcandles of electrical light is provided. It had been as low as 15 footcandles in some sections.

The financing was accomplished through the local sales tax of ½-cent per dollar.

All photos courtesy of Wakefield Lighting

The Health Department once had this jumbled look . . .

. . . but now it appears neat and gracious.

1. *A view of the downstream end of the arch. The corner of the brick building is only one foot off the arch foundation — another reason for the decision to retain part of the arch as the finished sewer.*

2. *First 200 feet of the sewer had to have a reverse curve to align the culvert with the arch. Each barrel is 11x10 feet.*

130-Year-Old Arch Saves Us $16,000

. . . and simplifies storm-sewer construction in Dayton, Ohio

By ELMER GOOCH
Chief Engineer
Bureau of Sewers
Dayton, Ohio

Back in 1827 or 1828, we are not sure which, some now unknown engineer had the wisdom, foresight, or possibly plain good luck to design a stone arch storm sewer that we still can use today. It is entirely possible that Daytonians of that time complained of the size and cost. Their great - great - grand - children reap the benefit.

By retaining the old stone arch as part of a new storm-sewer project, the contractor avoided a difficult sheeting and underpinning job, the public was saved the inconvenience of a torn-up street, and the city saved some $16,000.

Basically, the project consisted of constructing a twin box sewer in an open ditch that carried storm flow from an existing drainage system to the Great Miami River. The upstream drainage area comprises some 2,100 acres of typical urban development that is probably 95% developed at this time. The existing drainage system consists of three main branches, each of which is equivalent to an 84-inch pipe at the downstream end. These three sewers join together in the open ditch some 400 feet from the river, and during the work by the Miami Conservancy District in 1914 and 1915, the ditch was carried through the levee in a 4-barrel culvert. Fortunately the culvert was constructed with adequate capacity for the entire drainage area.

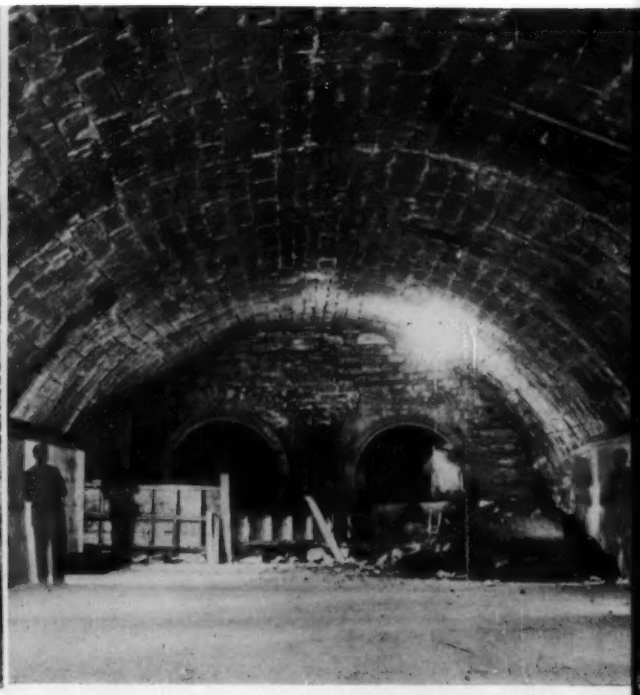
Arch Retained

The three branch sewers, started prior to 1875 and extended through the years, were not designed to suit our present needs. Consequently, much of the system is undersized for present-day runoff. However, the one adequate structure built prior to 1875 is the stone arch, which covers a portion of the large ditch.

The arch, built of very hard limestone, was 320 feet long with a span of 30 feet at the spring line and an average rise above the floor of 16 feet. The foundations, also of limestone, were 7 feet wide at the base. The floor, most of which has been gone for many years, consisted of oak and walnut timbers. It was apparently constructed in two sections: a 234-foot upstream portion, and an 86-foot downstream extension. Inspection showed the workmanship to be noticeably different in each.

Originally we intended to replace the entire arch. But close examination, after our contractor had excavated and drained it, showed that the 234-foot section was in a very sound condition. It was then that we decided to make use of the old arch.

The contractor first excavated the poor material inside the arch and replaced it with course material topped with pit run gravel. His crews then covered it with an 8-inch reinforced concrete slab to serve as the floor of the sewer. He then provided new foundations, designed to carry the vertical load only from the arch. The walls supporting the new steel arch have vertical inside faces and were



3. *Interior view of arch with floor and supporting walls for the steel arch in place. Note photographer's ghostly helpers.*

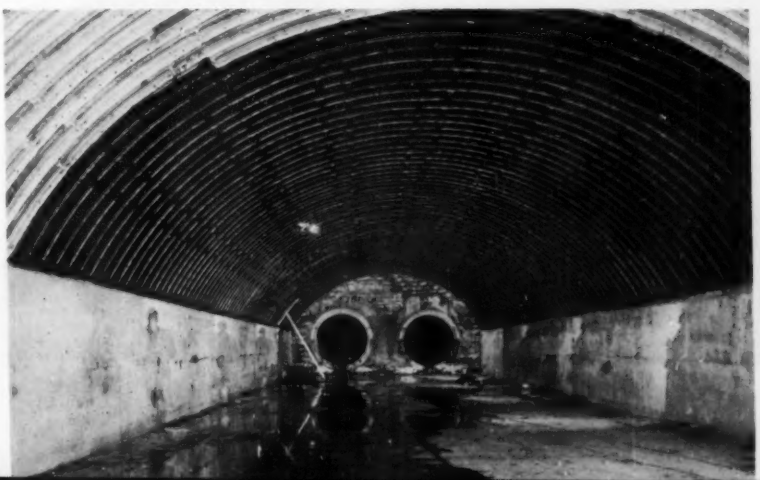
4. *The partially completed arch. Note neat fit of the metal to the stone arch.*

poured against the existing stone arch. They are 9 inches wide at the top and are as much as 2 feet thick at the spring line of the stone arch which is just above the mid-point of the new walls.

Distance between the walls is 26 feet and the span of the galvanized Armco liner plate construction is 26 feet 8 inches. The rise of the arch is 8 feet 4 inches. The metal base channels and the arch crown are level while the floor has a 0.3% grade which causes the walls to vary in height throughout the 234 feet.

The void between the metal and stone arches averaged about 6 inches throughout. Grouting plugs incorporated in the metal arch per-

(Continued on page 151)



5. *The completed job except for coating a portion of the steel arch. Next move consisted of removing the 84-inch pipes, constructing a junction chamber and extending the twin box sewer 140 feet plus a 9'x9' box branch some 1100 feet long.*

Six of these Pak-Mor Lo-Boye trailer units cover the residential area of about 11,000 homes. Each unit with a two-man crew serves about 450 homes daily on a weekly pickup schedule. Note special cab with right-hand drive and walk-in door.

The split top of this three-yard steel bin provides easier customer use. Heavy-duty casters permit the truck driver to position the bin for fork-lift pickup.

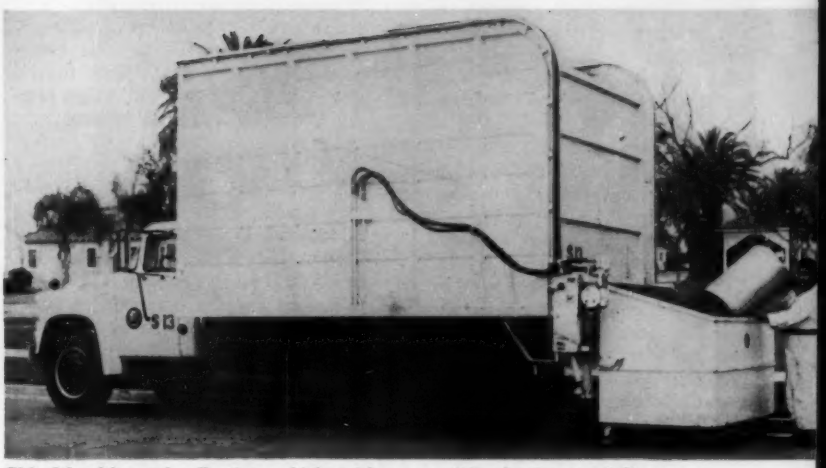
Culver City Takes Over

. . . after 30 years of private refuse collection

By **DEANE SEEGER**
Chief Admin. Officer
Culver City, Calif.

Author Deane Seeger, Captain Ralph Wilson, in charge of the fire protection services, and Sanitation Superintendent B. Pecora (l. to r.) look over one of the hydraulic packer units used to serve business and industry.

sewer 140 feet plus a 9'x9' box branch some 1100 feet long.



This 34-cubic-yard collection vehicle with rear-end loader is especially suited for refuse collection in narrow business alleys.

Can a municipally-operated refuse collection system provide a better level of service to a community at a cost comparable to that charged by private franchise contractors?

This, briefly, was the challenge faced by the City Administration in Culver City, California (population 34,500), home of three major movie studios, and known to southern California as "The Heart of Screenland."

With only a 120-day notice, following the City Council's decision to abandon a 30-year program of private collection, the City Administrator's Office created a Refuse Collection Division in the city's Public Works Department. Orders were placed for $140,000 in new equipment; the Personnel Division recruited a Division Supervisor and 23 drivers and crewmen; and a survey was started to determine the service needs of 11,000 householders and approximately 800 business and industrial firms. Despite delays in the delivery of some equipment the new program got under way on February 2, 1959, as scheduled, and 30 days later had survived the worst of the "change-over" problems and the dire predictions of failure openly voiced by critics of municipal ownership and operation.

To handle the once-a-week curbside collection of wrapped garbage, combustible and non-combustible rubbish, in the residential areas the city purchased six Pak-Mor 28-cubic-yard Lo-Boyes. The big trailers are pulled by 6-cylinder, 25,700-lb. G.C.W. Dodge tractors. These tractors were specially designed with a walk-in-cab and right-hand drive to provide for a two-man operation, as contrasted with the three-man collection crews commonly used in the Los Angeles metropolitan area. Short coupling of tractor and trailer provides amazing maneuverability, even on narrow residential streets and cul-de-sacs. The residential areas are divided into five sections of approximately 2,200 home units, and each truck completes its daily route in seven to seven and a half hours, five days per week. Collections start at 6 a.m. daily. The average household pickup of combined trash and garbage is 55 pounds, and the packers deliver a pay-load of six to seven tons per trip to the city-owned transfer station.

The use of locally manufactured steel bins, in two- or three-yard sizes, constitutes a new feature of the municipal service to business and industrial establishments. Three hydraulic overhead fork-lift Bowes Packers, mounted on 33,000-lb. G.V.W. tandem-axle International Harvester trucks, service these bins as required. Two of the trucks have 18-foot packer bodies of 35-cubic-yard capacity and one has a 22-foot body of 45-cubic-yard capacity.

In business locations where bins are not practical, service is provided by a 3-yard hopper bin carried on the truck. These hydraulic packer units have self-closing lids, preventing the scattering of wind-blown paper and trash, and are presently operated by two-man crews. As more bins are placed in service the two smaller units will require a driver only on the commercial routes. Three 34-cubic-yard dump trucks, one equipped with rear-loading hydraulic bin, a garbage "scow" for commercial wet garbage, and a supervisor's patrol truck make up the balance of the city's "white fleet" presently in service. The open "dumps" are designed for separate cardboard salvage and special month-end pick-ups in residential areas of such items as discarded furniture and appliances, water boilers, and similar items. This special cleanup service, and the use of the covered bins for the business and industrial pickups has already brought a noticeable improvement in overall city cleanliness and the commendation of fire and health inspectors.

The chief source of revenue for financing the operation, as in the past, is a 20-cent tax levy, producing $144,000 annually. For an

average home, with an assessed valuation of $3,000, this represents a yearly cost of $6.00, or 50c per month. In addition, the city bills business and industry at a basic rate of $1.00 per cubic yard for excess service over and above the minimum weekly service provided to residential properties. These charges, plus sale of salvage materials, are expected to produce approximately $65,000 in additional revenues each year. The "excess service" charge at the established city rate comes to approximately 21% lower than the private contractor charge.

In inaugurating the program the City Council advanced $140,000 from its investment fund surplus to acquire the new equipment and by ordinance stipulated a five-year repayment of this advance from Refuse Collection income, at the rate of $29,750 per year. In addition the ordinance provided that a cash depreciation reserve for equipment replacement be established and this has been fixed at $13,280 per year.

The modern equipment, operated by courteous, trained, white-uniformed personnel, has been well received by householders and businessmen alike and there is every evidence that the net cost to the taxpayer for the new collection program will be less than before.

Transfer System

The nearest disposal site, a sanitary landfill of the cut-and-fill type, is located 19 miles from the city limits. This influenced our decision to use the large capacity Pak-Mors, to reduce the number of dump trips. The city, however, was able to negotiate for a transfer service from its own city yard station, at a per-ton price that reflects substantial savings over its own hauling and dumping costs. This "shuttle" service is provided for by eight 40-cubic yard metal "boxes," mounted on steel casters. When filled these are loaded onto a specially designed White truck chassis equipped with a hydraulic rail hoist. Dumping schedules at the transfer pit are spaced to avoid congestion and the transferring of approximately 90 tons of rubbish and garbage per day has developed into a smooth, trouble-free operation after two months of "trial and error" operation.

In reviewing operations for the first 90 days, Bruno Pecora, Sanitation Superintendent, states that "with complaints averaging less than four per week, we feel we have won our first objective—public acceptance of our program and there is every indication, even at this early date, that we can provide good service at no increase in cost."

Los Angeles City Council OK's Spectacular Renewal Project

Recently the Los Angeles City Council approved legislation which will transform a 136-acre semi-slum area called Bunker Hill into a modern urban jewel. Plans call for a 24-acre residential plaza containing 3,100 modern apartment units, a 16-acre plaza for the latest in office-business structures, a 6-acre hotel site, 14-acre motel section and a shopping and office complex.

Parking will be provided on the perimeters of the site in multi-storied structures and also by subsurface areas below each plaza. Facilities provided for those working or living in the Bunker Hill area will take care of approximately 10,000 cars. Space for an additional 10,000 automobiles will help solve the parking problem of the adjacent downtown business areas and the new Civic Center of Los Angeles.

Some 5,087 old buildings will give way to modern structures in which 10,000 persons will live and 50,000 to 60,000 will work.

Street and traffic improvements in the project include the elimination of substandard streets and alleys, as well as the grade separation of vehicular and pedestrian traffic.

Steep grades will be eliminated on the primary streets and plans are designed to reduce downtown traffic congestion by grade separations.

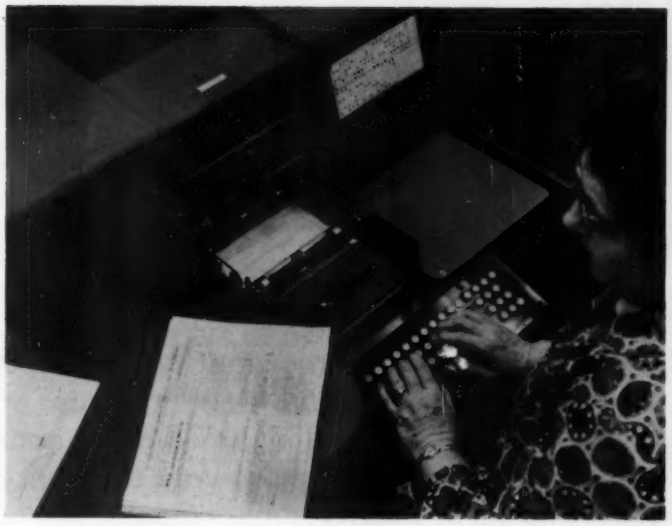
Bunker Hill, a 136-acre semi-slum area in the heart of downtown Los Angeles, will look like this after a $315-million redevelopment project is completed.

According to William T. Sesnon, Jr., chairman of the Community Redevelopment Agency which will execute the plan, approximately $65 million will be spent for the purchase of the land and preparation of the site for private enterprise construction. The federal government has pledged $58,711,461 of this as a loan and grant and the CRA will return $42,875,000 to the federal government from the sale of land to private enterprise.

Sesnon also said that the CRA would lean over backward to give present property owners every possibility to participate in the new development. The architects' master plan was designed, he said, to accommodate smaller structures in a two-block area along Hill St. to allow present owners to participate if additional small parcels of land were purchased.

Joseph T. Bill, executive director of the Community Redevelopment Agency, estimated that the city's tax revenue from the area will increase from approximately $500,000 yearly at present to $4,400,000. He stressed that the project will have no bearing on property tax rates. The city's cash outlay will be limited to $15 million which will be raised by a bond issue and which will be repaid from the increase in tax revenue to the city.

Charles Luckman Associates, planning-architectural-engineering firm of Los Angeles and New York, is designing the project.



From completed, checked personal property tax returns, an operator in the Comptroller's department punches Remington Rand 90-column cards with name, address, tax book number, individual and total valuations.

Univac Figures St. Louis Personal Taxes

By **JOHN H. POELKER**, Comptroller, St. Louis, Mo.

An electronic computer now calculates St. Louis, Mo., personal property tax bills in one-eighth the time formerly required. Tax bills, tax book pages and next year's tax return forms are printed from the same set of punched cards.

Speed is important to us. In recent years, the St. Louis Board of Aldermen, beset by budgetary problems, has delayed establishing our tax rate. This not only cut down the time we have to prepare the personal tax bills, but delayed printing the forms because the tax rate is imprinted on them.

Under our present system, completed tax returns are mailed to the Assessor's Office by April 1. There, the automobile valuation is inserted, the returns are checked for realistic valuations of other personal property, then totaled.

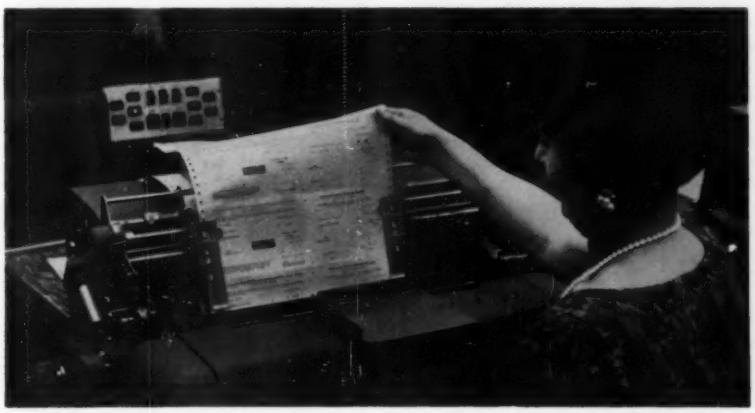
They then come to the Comptroller's Department where the information is punched into cards—usually one for each tax return. These cards go to the Tabulating Department. When the cards are ready for computing, the Univac 120 first multiplies the total valuation by the tax rate to get the total tax bill. It automatically verifies this figure and then punches it into the cards. The computer also punches in a tabulator control hole which prevents a bill from being split between two pages in the tax book.

We then put the 250,000 cards through the Univac 120 again. It punches consecutive bill numbers into them, and checks all of its computations from the first pass. The cards next go through a tabulator to produce our three-part tax-book pages. When completed, the books go to the Assessor, Comptroller and Collector. We then punch a card with the total of every hundred tax bills, as listed on the pages, and tabulate these cards to produce recap pages by book.

Finally, we punch a total card for each book and tabulate these to get a three-part recap of all books. It is bound in the first book only.

Next we run the cards through the Tabulator again to write the tax bills. The Univac 120 computes the tax bill both to mills and also to a rounded figure. On the tax notice sent to the taxpayer the exact figure is scored out and the rounded figure shows. But on the receipt, held by the Collector until payment is received, the rounded figure is scored out and the exact figure shown.

Like many another large city today, St. Louis is saddled with serious financial problems. These make operating economies more vital than at any other time in the city's history. Consequently, we particularly appreciate the fact that our computer gives us the seldom-found combination of economy, speed, accuracy and processing efficiency.



The computed cards are put through a Remington Rand tabulator to write tax bills.

Urban Counties Start Taking Over Suburban Fire Protection

In the suburban portion of metropolitan areas, the old-time volunteer fire fighting force, often relatively untrained and at times more social than professional, is slowly giving way to county-wide departments or county supervision

In a study of 35 representative urbanized counties, made by the editors of this magazine, nine have county fire departments. The other counties rely on the paid or volunteer fire departments of the municipalities. However, in 20 counties the community fire departments are coordinated at the county level.

The accompanying table summarizes these findings, and indicates the changing status of fire protection in the urbanized county. The facts have been supplied by the chief county officers: county manager, coordinator or administrator. In some instances their reports were elaborated, and are included in the following sections.

Fairfax County, Va.

Fairfax County, Va. exercises considerable control over this service. The county adjoins the District of Columbia and therefore in a practical sense has Washington, D. C., as its central city. Harvey A. Mitchell, Administrative Assistant to the County Executive, County of Fairfax, Fairfax, Va., writes: "We have one fire company in each of 17 fire districts which cover the entire county. The county government pays for much of the equipment and provides a 'caretaker' force of two paid firemen in each company. The companies are basically staffed with volunteers, own privately their station houses, and pay for the maintenance themselves.

"All emergency calls come to a central dispatching unit manned by county employed dispatchers. Also, we have a quasi-governmental county fire commission consisting of elected representatives from each volunteer company.

"To the extent that Washington, D. C., is the central city of a metropolitan complex, Fairfax County and three other Northern Virginia communities participate with Washington, D. C., and Montgomery and Prince Georges Counties, Maryland, in a Mutual Aid agreement under the terms of Public Law 689."

Buncombe County, N. C.

This county is increasing its control over and upgrading the standard of fire protection in the out-of-city portions of Asheville. "Among the various fire departments, or rather *district* departments," writes Coke Candler, Chairman, Board of Buncombe County Commissioners, Courthouse, Asheville, N. C., one has recently voted an annual amount not to exceed ten cents on the hundred dollars of assessed tax value. Of course the Board of Commissioners levies this district tax and contracts with this district fire department to maintain and operate an efficient department."

Here the County Board of Commissioners has appointed a Rural Fire Commission composed of Asheville's fire chief, the fire chief and the plant manager of American Enka Corp., and one member of the County Board of Commissioners. All rural fire departments, in order to qualify for county aid of $100 per month and substantial loans, must be approved by the Rural Fire Commission.

Pierce County, Wash.

In the Tacoma, Wash., metropolitan area, county control, or perhaps coordination, has a grass-roots character. "Nineteen fire protection districts in Pierce County," writes Gus K. Partridge, Director, County Civil Defense, 137 County-City Building, Tacoma, "are bound together by a Mutual Aid agreement coordinated and directed by County Civil Defense."

Four districts have several paid firemen: District 1 has 3 paid and 35 volunteers; District 2 has 14 paid and 40 volunteers; District 3 has 2 paid and 31 volunteers; District 6 has 4 and 25; District 9 has 1 and 30. The others are manned by volunteer firemen ranging from 17 to 43 men. The companies are equipped with thirty 500-gpm and fifteen 750-gpm pumping engines for a total of 45 pumpers. Two are American La France, 4 Seagrave, 2 Mack, 6 GMC, 7 Chevrolet, 14 Ford, 4 Diamond T and, 3 International. Alarms responded to in 1958 totaled 1222 and fire losses

County, State (Seat)	County Fire Dept.	Local Fire Departments (full time paid)	(Volunteer public funds)	(Fire Co. Contr.)	Coordination at county level	Radio system	Tied in with other counties	County respond in Central City	Circumstance	Central City respond in County	Circumstance
1. Solano, Calif. (Fairfield)			yes		yes	yes	no	yes	M.A.*	yes	request
2. Fresno, Calif. (Fresno)	Special	Fire Districts				yes	no	yes	M.A.	yes	M.A.
3. Los Angeles, Calif. (Los Angeles)	yes				yes	yes	C.D.				
4. Contra Costa, Calif. (Martinez)	no	some			no	yes	no	yes	request	yes	request
5. Riverside, Calif. (Perris)	yes				yes	yes	yes	yes	M.A.	yes	request
6. San Mateo, Calif. (Redwood City)	yes				yes	yes	yes	yes	M.A.	yes	M.A.
7. San Bernardino, Calif.(San Bern.)	32 dist.	yes	7 dist.	no	yes	yes	yes	yes	M.A.	yes	M.A.
8. San Francisco, Calif. (San Fran.)	Combined City and County										
9. Santa Clara, Calif. (San Jose)	10 dist	5 dist.	3 dist.	2 dist.	C.D.	yes	yes	yes	M.A.	yes	M.A.
10. Dade, Florida (Miami)	yes					yes	no	yes	M.A.	yes	M.A.
11. Fulton, Georgia (Atlanta)			yes	yes		yes	no	no		yes	1 contr.
12. Cook, Illinois (Chicago)					yes	yes			M.A.		M.A.
13. Polk, Iowa (Des Moines)			yes		no	no		no		no	
14. E. Baton Rouge, La. (Baton Rouge)	yes					no		yes	emerg.	yes	emerg.
15. Cumberland, Maine (Portland)	No county fire equipment or personnel per se										
16. Anne Arundel, Md. (Annapolis)			yes		yes	yes	yes	yes	M.A.	yes	request
17. Montgomery, Md. (Rockville)	no	yes	yes		yes	yes	yes	yes	request	yes	request
18. Prince Georges, Md. (Hyattsville)			yes		yes	yes	yes	yes	M.A.	yes	M.A.
19. St. Louis, Missouri (Clayton)	no	yes	yes	yes	yes	yes	no	no		no	
20. Essex, New Jersey (Newark)		yes	few				C.D.	yes	emerg.	yes	emerg.
21. Paterson, N. J. (Hackensack)			yes		yes	yes	no	yes	request	yes	request
22. Oneida, New York (Utica)	no		yes		yes	yes	no	yes	M.A.	yes	M.A.
23. Westchester, N. Y. (White Plains)		yes	yes	yes	yes	yes		yes	request	yes	request
24. Buncombe, N. C. (Ashville)	no		yes	yes	yes	yes	no	no		yes	contract
25. Durham, N. C. (Durham)		Durham				yes	no	yes	contr.	yes	contract
26. Forsyth, N. C. (Winston-Salem)	yes		yes		yes	yes	C.D.	yes	emerg.	yes	emerg.
27. Guilford, N. C. (Greensboro)			yes		yes	yes	no	no		no	
28. Cuyahoga, Ohio (Cleveland)		yes	few	yes	yes	yes	no	yes	M.A.	yes	contract
29. Dorchester, S. C. (Charleston)			yes		no	yes	no	yes	request	yes	request
30. Hamilton, Tenn. (Chattanooga)	no			yes				no		no	
31. El Paso, Texas (El Paso)			yes		no	no	none	no		yes	request
32. Arlington, Virginia (Arlington)	yes					yes	yes	yes	M.A.	yes	M.A.
33. Fairfax, Virginia (Fairfax)			yes		yes	yes	yes	no central city		yes	M.A.
34. Henrico, Virginia (Richmond)	yes	yes	yes		yes	yes	no	yes	request	yes	request
35. Pierce, Washington (Tacoma)			yes		yes	yes	yes	yes	M.A.	yes	M.A.

County officials supplying information are as follows:

1. C.E. Green, County Fire Coordinator & Fire Warden
2. Ernest N. Mobley, Co. Admin. Officer
3. Arthur G. Will, Co.-City Coordinator
4. J.S. Connery, Staff Analyst, Co. Admin. Office
5. Truman Holland, State Forest Ranger
6. M.F. Rolih, Admin. Analyst
7. W.W. Skinner, Co. Fire Warden
8. Wm. F. Murray, Chief, Fire Dept.
9. H.C. Lingua, Chief Eng., Cont. Fire Protection District
10. L.H. Greer, Chief, Fire Div., Metr. Dade Co. Pub. Safety Dept.
11. A.E. Fuller, Co. Mgr.
12. J.A. Downey, Dir., C.D. & Safety Comm.
13. E.W. Armel, Chmn., Bd. of Supervisors
14. Elwood Sartain, Parish Clerk
15. C.O. Spear, Jr., Chmn., Co. Commissioners
16. H.W. Klasmeier, Chief, Fire Prev. Bureau
17. M.L. Reese, Co. Mgr.
18. L.R. Woltz, Fire Marshal, Dept. of Fire Prevention
19. J.J. Moody, Supervisor, Fire & Acc. Prev.
20. Wm. Caine, Exec. Aide to Co. Supervisor
21. Wm. R. Smith, Clerk & Exec. Admin.
22. Robert F. Hess, Co. Coordinator, Cent. Fire Station
23. Edwin G. Michaelian, Co. Exec.
24. Coke Candler, Chmn., Bd. of Comm.
25. E.S. Swindell, Jr., Co. Mgr.
26. L.H. Abbott, Co. Mgr. & Accountant
27. J. Harry Weatherly, Co. Mgr.
28. Lawrence E. Murtaugh, Co. Admin.
29. Albert Hain, Co. Mgr.
30. C.A. Ragan, Co. Eng.
31. Lee R. Jones, Co. Admin. Officer
32. Joseph H. Clements, Fire Chief
33. H.A. Mitchell, Admin. Asst. to Co. Exec.
34. P.L. Burnett,Sr.,Chief, Co. Fire Dept.
35. Gus K. Partridge, Dir., Co. C.D.

* M.A. means Mutual Aid

Summary of fire protection methods reported by urban counties.

totaled $1,540,000 ($1,292,000 being the loss at one fire).

East Baton Rouge Parish, La.

The Parish (county) of East Baton Rouge exercises complete control over fire protection and has a well-organized system of mutual support with the central city of Baton Rouge. Elwood Sartain, Parish Clerk, East Baton Rouge, La., writes: "The Parish has only one fire protection district, created by referendum of the property taxpayers living within the district. This fire protection district has imposed upon itself one millage tax for maintenance and one millage tax to pay the principal and interest on the bonds sold for the necessary capital outlay. The district contains two stations which have three full-time employees each in addition to a number of citizens on a volunteer basis. The Parish fire protection district is separate and distinct from the city fire department.

"On occasion the City Fire Department and District Fire Department answer the same fire alarms where the magnitude of the alarm warrants the efforts of all fire fighting equipment available. The City Fire Department will answer fire alarms in the parish, but for a small fire the City Fire Department stands by to "back up" the District Department against a second emergency."

Prince Georges Cty., Md.

Prince Georges County, another of the Washington, D. C., suburban areas, uses chiefly volunteer fire companies, usually financed by an assessed valuation charge of 10c per $100 voted by referendum and levied by each election district. "In addition," writes Lawrence R. Woltz, Fire Marshal, Department of Fire Prevention, County Service Building, Hyattsville, Md., "the County Commissioners have annually appropriated $3,000 for each Fire Department that meets the equipment and manpower requirements of the Prince Georges County Voluntary Firemen's Association."

By mutual agreement the Chiefs assign areas for protection. Apparatus is dispatched by a central Fire Control Board. Each company is equipped with two-way radio.

Prince Georges' Fire Control Board operates on its own frequency of 33.86 megacycles. The Board has two-way radio connection with the Forestry Department; the Fire Boards of Anne Arundel, Charles, Montgomery Counties; Laurel Rescue Squad; and the District of Columbia Fire Department.

The Strong Fire Forces In Los Angeles County

By **ARTHUR G. WILL**
County-City Coordinator
Los Angeles, Calif.

Mounted atop an 85-foot Seagrave aerial ladder truck the fireman shoots down into blazing grain elevator during a fire in the City of Bellflower, Calif., which is served by the County by means of the Consolidated County Fire Protection District.

Photo courtesy of the Los Angeles County Fire Dept.

Los Angeles County has a population in excess of 5,800,000 persons of whom 2,400,000 live within the central city. The remainder of the population resides in 63 surrounding communities and in the unincorporated areas of the county. The importance of the surrounding cities can be seen by the fact that one of them, Long Beach, has a population of about 317,000 while two others, Glendale and Pasadena, have populations of about 120,000 each. Eleven cities in the county have populations ranging from 55,000 to 97,000.

Most of the cities have their own fire departments; however, the county furnishes fire protection to the 1,120,000 persons living in the unincorporated areas, and by July 1 of this year, it will also be furnishing fire protection to 18 cities through a system of fire protection districts.

The county provides fire protection through its Forester and Fire Warden Department. This department also services the fire protection districts. The fire protection districts are financed by a separate tax rate within each of the districts while fire protection for watershed and recreational areas is financed by the county's general fund.

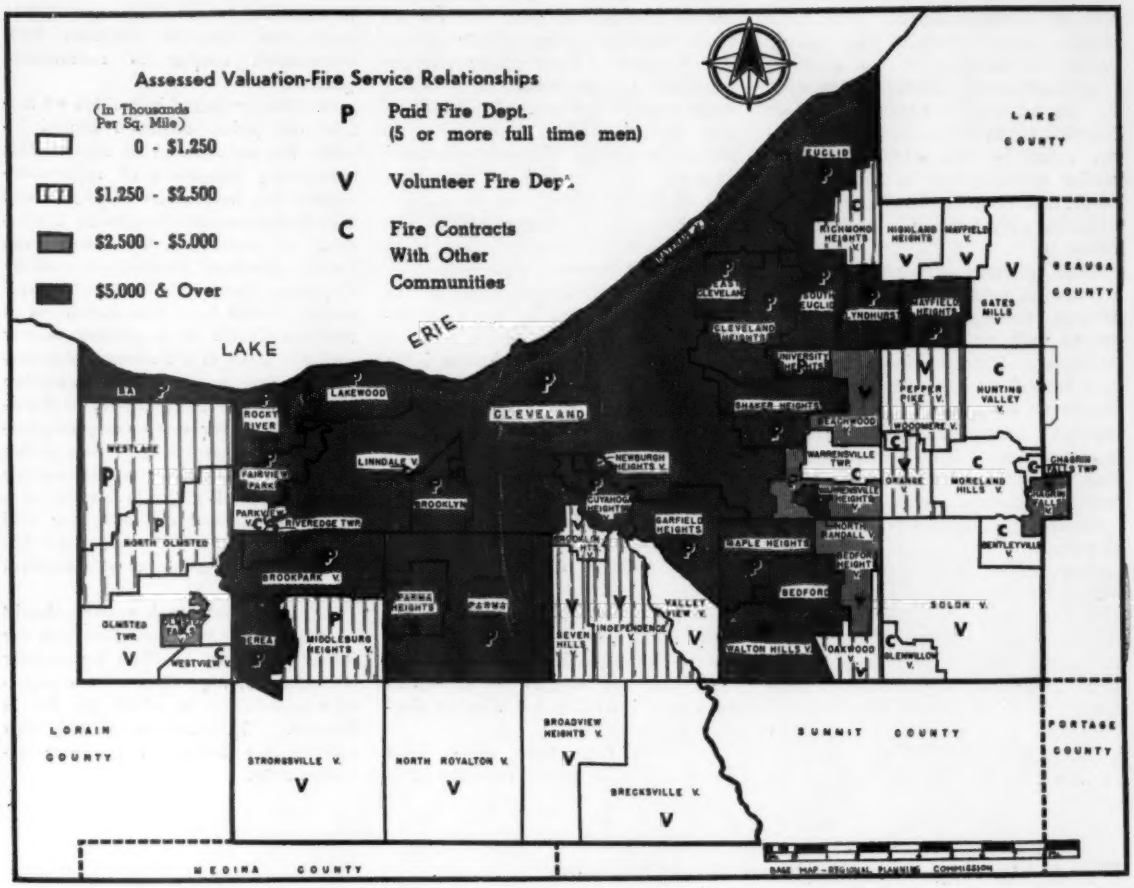
The Fire Department has a very good two-way radio system which was installed about ten years ago and has recently been modernized through the installation of a new central dispatching board and microwave relay equipment. The system is not tied in with that of other counties but can communicate with these counties through the state civil defense radio network which maintains a base station at fire department headquarters.

The county fire department has a sort of "gentleman's agreement" with state and county forestry officials, the U. S. Forestry Service, and the City of Los Angeles for responding to fires in what is called the "initial response action zone." This zone comprises the watershed areas in the national forest and foothill regions. In the event of a brush fire in this zone, the department with the nearest station responds immediately without regard to jurisdictional boundaries. This agreement was born of necessity because of the hazard of watershed fires in our dry climate.

In addition, the county has mutual aid agreements with 32 cities. These are currently under study and may be revamped to bring them within the jurisdiction of the state civil defense organization. Since both Los Angeles City and County Fire Departments are well equipped and manned, it is usually not necessary to provide each other aid in the event of structural fires.

The City of Signal Hill, which recently experienced a disastrous refinery fire, has decided to abandon municipal fire services and has contracted with the county to provide fire protection for the city until such time as the city can be annexed to the Consolidated Fire Protection District. This is the first instance in this county in which an "old line city" has discontinued its fire department in order to avail itself of county services.

There are six fire protection districts in the county, the largest of which is the Consolidated District which has a total assessed valuation of $1,528,226,270 and a tax rate of 54½c. Other districts are considerably smaller and have tax rates ranging from 37½c to 68c. The total annual levy for the districts is $10,423,282.



What's Wrong With Fire Protection In Cuyahoga County

Diversity of organization and services, lack of rigid standards by which the adequacy of a given fire department may be measured typify weakness in fire fighting services in a county that has changed from rural to urban

Cleveland's Cuyahoga County, Ohio, has 48 separate and district agencies performing fire protection functions. Of these, 26 employ one or more full-time men and 20 fire departments being manned solely by volunteers. The remaining two are maintained by the State Fire Marshal's Office and the State Department of Industrial Relations.

The levels of protection range from that provided by Cleveland, with a giant department, to Riveredge Township, a community without any formal means of fire protection. The size of the fire fighting personnel varies from 1,268 full-time men in the central city to the 15-man volunteer department in Brecksville.

Suburban departments differ widely in the amount of fire equipment available. At the top is Cleveland Heights with five pumping engines and two hook-and-ladder trucks. At the other is Beachwood, with one pumping unit and one booster unit. Most com-

munities have no independent system of communication. Few have aerial ladder trucks, and indeed many of them have no need of such equipment. However, in view of the extensive shopping center developments throughout the county, such as the $30,000,000 unit under construction in North Olmsted, this lack of hook-and-ladder vehicles may become a serious deficiency.

Most communities with fire departments gain additional fire protection through mutual-aid contracts with neighboring cities and villages. Thirteen other villages and townships without fire departments or with small forces rely on service contracts with adjacent communities. The accompanying map shows the types of fire protection services utilized by the various communities of Cuyahoga County.

The most glaring weakness of volunteer departments generally in this area is the limited manpower available for fighting fires in the daytime. Figuring on the basis of a minimum of five men available for duty in an engine company, a standard prescribed by the Fire Underwriters, several communities in the county are below minimal strength. Four of the villages reported having less than five volunteers working in the village during the daytime. Four other villages reported that six members or fewer were employed there. Conditions of this nature raise serious doubts about the ability of many volunteer departments to extinguish fires during daylight hours. In fact, with the exception of communities where persons work where they live, most localities in the area with volunteer departments are handicapped in fire fighting operations by their dormitory status.

These points of weakness have been uncovered by the study group on Public Safety of the Cleveland Metropolitan Services Commission, with Oliver Schroeder, Jr., as the chairman. To correct these weaknesses, this group made the following recommendations:

1. Cuyahoga County should be granted power to establish and enforce minimum fire protection standards in all areas. These standards should guarantee basic fire protection for all communities in the county at all times, including the regular daylight hours.

2. State regulations which limit the duration of mutual aid fire contracts to a period of three years should be amended to permit communities to enter into long or indefinite term agreements subject to cancellation provisions.

3. The projected committee on mutual aid police contracts should include fire contracts in its study. This committee, composed of representatives of the Association of Mayors and City Managers, the Cuyahoga Conference of Municipal Legislators, the County Solicitors' Association, and the Cuyahoga County Police Chiefs' Association should have representatives of the Fire Chiefs of Cuyahoga County and the Lake Erie Firemen's Association added to it. This committee should then be charged with a) developing means for centralizing responsibility for the proper execution of fire mutual aid contracts; b) developing an educational program on the utilization of mutual aid contracts; and c) preparing a model mutual aid fire contract for the guidance of individual municipalities.

4. An operational system should be worked out that would provide for initial responses to fires by nearby departments, regardless of the particular jurisdiction in which the fire is located. This system should also provide for automatic move-up arrangements.

Fire Drill To Spur Initiative

During Fire Prevention Week and following the Chicago school disaster, a new type of fire drill was held in Middletown Township, N. J. schools. The idea was that at least one means of egress from a burning building might be blocked. Then alternate means of vacating the building must be found.

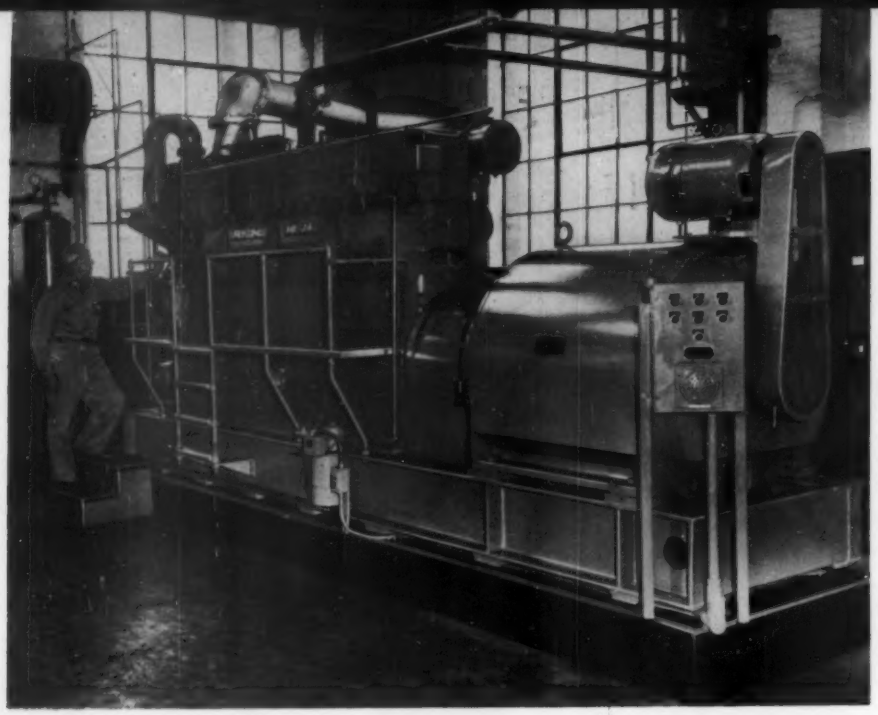
Here in Middletown Township, students and their instructors were confronted with the unexpected, a blocked exit. The sign at the exit to be blocked was placed there without the participants in the drill being informed of it.

When confronted with the unusual predicament, both students and their instructing personnel adjusted themselves to the situation and immediately sought alternate means of exit from the building.

RICHARD W. SEUFFERT
Business Administrator
Middletown Township, N. J.

Fire Chief Newton A. Mallett and Assistant Chief Elwood Seeley (on his right) conduct a fire drill at Bayview Elementary School, Middletown, N. J.

New Mack fire fighting units line up at City Hall in New York for inspection by Mayor Robert Wagner. Rising up against the skyline is a 100-foot aerial ladder and, to its right, a searchlight truck, rescue truck, and a 1000-gpm pumping engine. The New York Fire Department has purchased 112 pieces of Mack fire apparatus in the past two years.



This 500-kw diesel-alternator stands ready to take over job of supplying electric power for the Lima water pumping and treatment plant in case of emergency.

Diesel Replaces Steam

Lima, Ohio realizes $30,000 in annual savings through replacement of standby power and plant heating facilities

By **S. D. BRESLER**
Superintendent of Water
Lima, Ohio

Over the years electricity gradually replaced steam as the prime source of power at the Main Pumping Station of the Lima Water Works. These changes brought about a situation whereby steam, once the sole source of power, now served as a standby source. This resulted in a high unit cost of operation and low efficiency. In addition, the steam equipment was over 40 years old. Late in 1957 we made plans to discontinue steam operation and to start work on a modernization program early in 1958.

Our source of water is the Ottawa River, a small stream having a drainage area above the city of 129 square miles. The stream flows intermittently, necessitating the use of raw water impounding reservoirs. Each day we pump an average of 8.9 million gallons to serve a community of some 65,000 people.

Low service pumps lift the raw water 21 feet from the receiving reservoir to the treatment plant where lime-soda softening takes place. Treated water flows by gravity to four clear wells having a combined capacity of 2.75 million gallons. The high service pumps take suction directly from the clear wells.

On the distribution system, in the area where the heaviest industrial load occurs, is located a 1,000,000-gallon radial cone elevated storage tank.

We have always maintained reserve capacity and standby equipment, and in our recent remodeling program we gave special attention to the latter.

Prior to remodeling, our high service equipment consisted of three 6-mgd electric-motor-driven centrifugal pumps and one 6-mgd reciprocating steam-driven pump. For low service we had one 8-mgd and two 6-mgd electric units and one 4-mgd steam-turbine-driven centrifugal pump. Standby equipment consisted of the two steam-driven pumps plus one 500-kw steam-driven alternator with steam supplied by two stoker-fired 235-hp boilers.

Although the boilers, turbine-driven alternator and reciprocating pump were all over 40 years old, only the turbine and alternator were considered to be in poor condition. Nevertheless, we felt it would be advantageous to replace all standby equipment and increase overall pumping capacity at the same time.

Replacing the 6-mgd steam reciprocating pump with a 10-mgd De Laval centrifugal pump driven by

Left:
Engineer Garlock checks out the rewired switchgear. Dual switches permit the conversion to standby power in a matter of seconds.

Right:
This view of the low service pump room typifies the neat appearance of the entire plant. These pumps lift an average of 8.9 mgd of raw water to the treatment plant.

In Modernized Pumping Station

a 400-hp Westinghouse motor increased high service capacity from 24 mgd to 28 mgd. We stepped up low service capacity from 24 mgd to 26 mgd by replacing the steam turbine with a 60-hp General Electric motor and installing a larger impeller in the old 4-mgd pump. This has increased its output by 2 mgd.

New Standby Power

Our power supply is very dependable, coming into the station on two separate circuits with automatic changeover. The last interruption occurred in July 1950, when a tornado swept through the area knocking out power at the water plant for about 1½ hours. However, we felt the comparatively small cost of standby equipment could be offset many times by losses suffered by our customers due to a water supply failure in only one real emergency—the frantic day that may be overlooked but never forgotten.

The White Diesel Engine Division of the White Motor Company supplied the principal part of our standby equipment—a Superior Model 40 full diesel engine. This unit operates at 900 rpm for a continuous yield of 715 brake horsepower to drive a 500-kw Ideal alternator. It is also capable of carrying a 10% overload.

A 65-gallon wall-mounted day tank in the engine room assures adequate starting fuel oil. The main supply is kept in a 2,000-gallon tank located just outside the engine room wall. Two compressed-air starting tanks are kept in readiness by an air compressor, driven either by an electric motor or gasoline engine.

The engine-alternator set supplies enough electrical energy to operate an adequate number of pumps plus sufficient power for all other electrical equipment and lighting in both our pumping station and treatment plant.

Savings Realized

After installing the new standby equipment we replaced the two old boilers with a 100-hp York Shipley Modified Scotch Marine type unit designed to burn either natural gas or fuel oil. This is used to heat our three buildings. Existing switchgear was in excellent condition, but all high voltage wiring was in poor condition, so the latter was replaced and the switches rearranged for greater efficiency.

Actual experience shows that the annual savings in labor, fuel costs, and maintenance will exceed $30,000 per year. Taking out the large boilers and steam-operated equipment also provided extra floor space needed for other purposes.

We also realized substantial savings by using our own employees, who worked under the direction of A. W. Garlock, chief engineer of the pumping station, to install the new equipment. Our suppliers and some of their service representatives gave us valuable technical assistance.

Proper training of the working staff formed an important part of this program. Our regular staff consists of seven men—four operators, one mechanic, the chief engineer, and his assistant.

Once the standby unit was completely installed, each man underwent a thorough training period, running it once weekly until his performance became smooth and automatic. We now operate the unit once every two weeks for a regular equipment checkout.

While economies effected will be sufficient to amortize our investment within three years, we believe the importance of assuring our customers uninterrupted service more than justifies the expenditure for standby equipment.

Downtown Tree Planting

Los Angeles businessmen cooperate with the city in a tree-planting beautification program and find it is a good business investment

By **ROSS O. McINTIRE,** Street Tree Superintendent
Bureau of Street Maintenance, Los Angeles, Calif.

In the 50-square-block area of the Los Angeles downtown business district, some 40 property owners and firms have invested more than $100,000 in 140 street trees. The cost of these has run from $650 to $1,025 each. These same firms are paying $60 per year for the maintenance of each tree, including feeding, watering, pruning, and strange as it may seem, washing. Another firm has erected a new building adjacent to this area, and has planted 49 trees in the sidewalk area at a cost of $29,000. Three other business and shopping areas in widely separated parts of the city have embarked on programs that will plant 310 trees for a total investment of $20,000.

These trees are more than a beautification program; they provide a lasting economic value to the business life of the city.

Test Planting

The program started in 1955 when the Richfield Oil Company planted 13 trees in the downtown area in front of its building. This was a test case. No one was sure that the trees would live in the smoggy atmosphere of our downtown. But the trees did live and are adding so much to the appearance of the area that the city is constantly receiving applications to make similar plantings.

The project also encouraged property owners to plant trees in outlying business districts at their own expense. Moreover, it won support for a capital improvement program by the city for the beautification of certain abandoned rights-of-way. We now have landscaped approximately 30 acres of these waste areas and have plans to improve 20 more acres.

Proper Selection

From the practical standpoint, the most vital factor is the proper selection of trees. Nothing discourages the work more than the planting of a variety of tree that neither grows nor dies.

After considerable study and consultation with landscape architects and arboriculturists, we agreed that the Ficus retusa (Indian laurel) and Ficus nitida (Small leaf rubber) would stand the extreme conditions of auto exhaust gas concentration in our downtown area. Although the Ficus retusa and nitida have proven best adapted for the Los Angeles area, every city must select trees best suited to its own climate and atmosphere. Local arboriculturists and landscape architects should be consulted. Any tree in a downtown area must meet the following requirements:

- **be hardy and resistant to monoxide gas and other air pollutants associated with auto traffic.**
- **have upright habits of growth,**

This tree guard and grating was adopted by the city in 1957 as a result of the first planting by the Richfield Oil Company.

Trees now brighten the monotony of cold concrete and masonry in downtown Los Angeles.

with no tendency to "sucker" or produce "sport" branches.

- **respond readily to the pruning necessary to keep it within the confined space in which it must grow and provide clearance for pedestrian and motor traffic.**
- **be able to thrive in either partial shade or in the heat reflected from nearby buildings and pavements.**
- **create a pleasing, restful atmosphere over the greatest possible length of time with the minimum of maintenance.**

Tree Guards

When trees are planted in business districts it is necessary to close the tree well in some manner. At the time of the first planting, we had two standard plans, the first specified the closing of the tree with brick laid in a cushion of sand. However, since the bricks have a tendency to settle or turn, we discarded this plan in areas of congested pedestrian traffic.

An alternate required the use of an ornamental cast iron grille and guard based on plans we had prepared in 1927, and later discarded due to cost. The Richfield Oil Company deserves special credit for developing a new, economical and attractive tree grille and guard. The original 13 grilles and guards cost $245 each, however, we expect that the cost will become less as the demand for them increases.

One must keep in mind that downtown tree planting must enhance a building, not hide it. Regardless of how carefully trees are selected, the value will be lost unless the same careful consideration is given to location and spacing. Building features, traffic control, public utility installations, all play a part in the planting plan.

Consequently, trees may be spaced 40 to 60 feet apart in some locations, or they may be grouped only 25 to 30 feet apart, to frame an entrance or to emphasize some outstanding feature of a building. The planner must recognize that in downtown areas, shop windows must attract the eye of the pedestrian. In outlying areas, many feel that the motoring public must have an unobstructed view of neon signs and other advertising media. In order to avoid controversy, we have found it necessary to adopt a nearly uniform spacing in outlying areas.

City Locates Obstacles

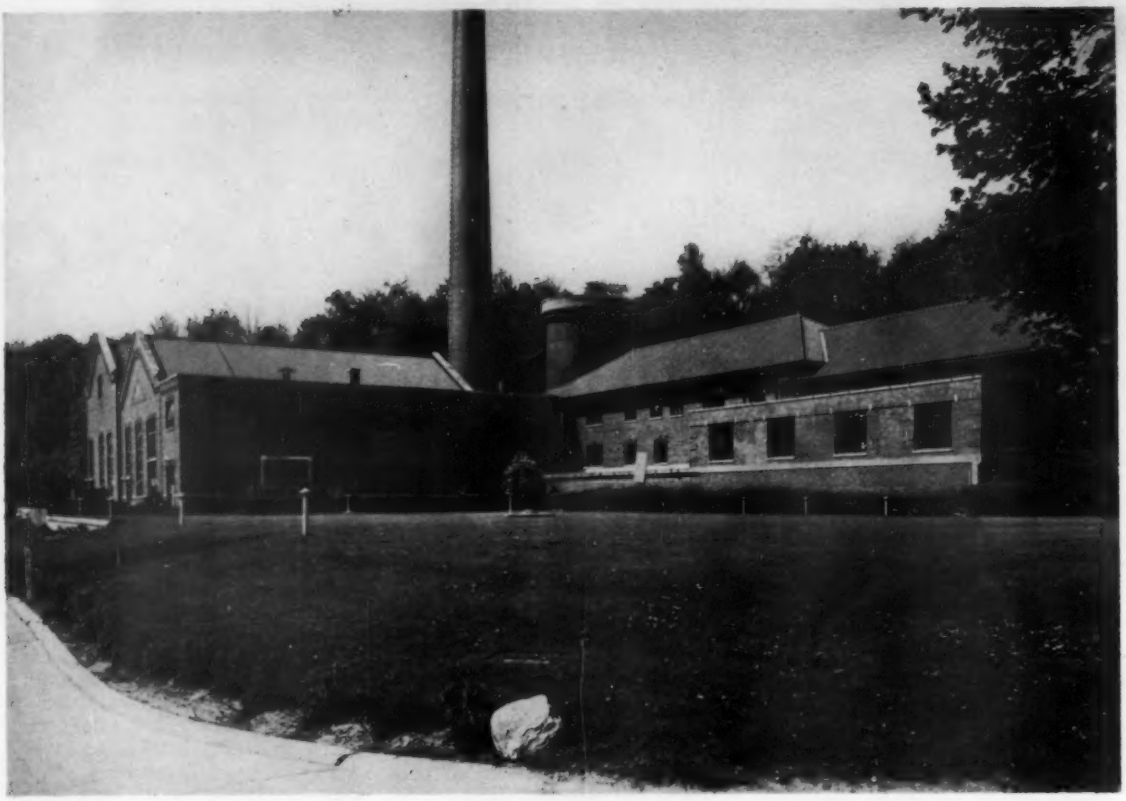
One serious problem in the downtown areas is the maze of conduits, gas and water lines, sewers, vaults, basements. Obviously, we first have to find them. Sometimes the City Engineer has this information on file. In many older parts of the city, the search becomes really difficult. To encourage the planting of trees, our Street Tree Division has assumed the responsibility for such investigations.

We also have seized on another opportunity for beautification of business streets, particularly those with traffic channelization islands. Normally, the city blacktops these areas to reduce maintenance costs. However, in 1956, the city initiated a capital improvement program to beautify these islands in order to support the Los Angeles Beautiful Committee. This gave us an opportunity to beautify business streets where sidewalk plans were impractical.

Color Added

To eliminate possible traffic obstructions and reduce the collection of debris and litter, we planted the areas to lawn and those specimen trees that have proved adaptable to these conditions. We spaced them at irregular intervals and interplanted occasionally with groups of smaller flowering trees of several varieties to add color. Also, in the landscaping of all such traffic islands, we have included the installation of an automatically controlled water sprinkling system to insure proper care.

The public attention given the planting of trees in the downtown business districts has created an interest far beyond any expectations. We must give proper credit to civic organizations, property owners, and firms for their efforts in beautification. Perhaps the most outstanding example of leadership was the Los Angeles *Times-Mirror* which planted seven trees in front of its building adjacent to the civic center. The editors of this newspaper use as their motto, "If it appears in the *Times*, it is true." If the trees appeared outside the Times Building, the meritorious value of the program also must be true.



Winnetka combines its filter plant and its electric plant in this building, with 2,100,000 gallons of storage in reservoir beneath the lawn (foreground).

Three Reservoir Plans—One Solution

Winnetka, Ill., on schedule with a 10-year financial program, builds remote-controlled 3-million-gallon tank for new lease on water life

By **A. G. OLSON**, Superintendent
Water and Electric Department, Winnetka, Ill.

Call it "crystal-ball tactics," clairvoyance or just plain and simple planning, the name doesn't matter. When a 1955 ten-year financial program for the Water and Electric Department of the Village of Winnetka called for a 4-million-gallon standpipe to be built during the fiscal year 1957-58, it hit the bullseye. It was during that period (just before the new reservoir was completed) that water pressure in the village mains dropped to low levels at the far ends of the system.

Prior to scheduling the construction of supplementary facilities, the Winnetka Water and Electric Department conducted a study of the system, searching for possible solutions to the problem of increasing firm supplies during peak periods of use.

At the time, water was pumped through the filter plant from Lake Michigan as it was needed, with storage provided only by the existing 46,000-gallon water tower lo-

Rapid sand filters occupy the first floor of the filter wing of the combined building (note clear-water observation station behind the operator) and laboratory facilities are located on the second floor with windows overlooking the filter deck.

cated in the northeast portion of the village and a 2,100,000-gallon storage reservoir at the plant.

During the original department studies, two solutions were investigated. The first involved enlargement of the filtration plant, installation of additional intake facilities and construction of a large water main from the plant to some central point in the distribution system. The second was construction of 4,000,000-gallon standpipe at an estimated cost of $300,000 in the western part of the village.

Recommendations

Under these early studies, the second plan was recommended for the following reasons:

1) Lower cost.

2) Substantial reserve supply in the event of trouble with the high-lift pump or a bad main leak.

3) Higher, more uniform pressure throughout the system.

4) Assurance of firm capacity for the south and west sections of Winnetka and its customer, the Village of Northfield.

5) Pumping spread over longer period at an average rate rather than at rates regulated by user demands.

6) Filtration at the plant spread over longer periods, operating always within limits of capacity.

7) During winter-time peak loads at the electric plant, high-lift pumps could be shut down without affecting water supply to the villages.

8) Lower operating costs due to lower average demands on pumps and filters.

9) Provision of storage at an extremity of the system to supplement water tower storage and underground storage at the filtration plant.

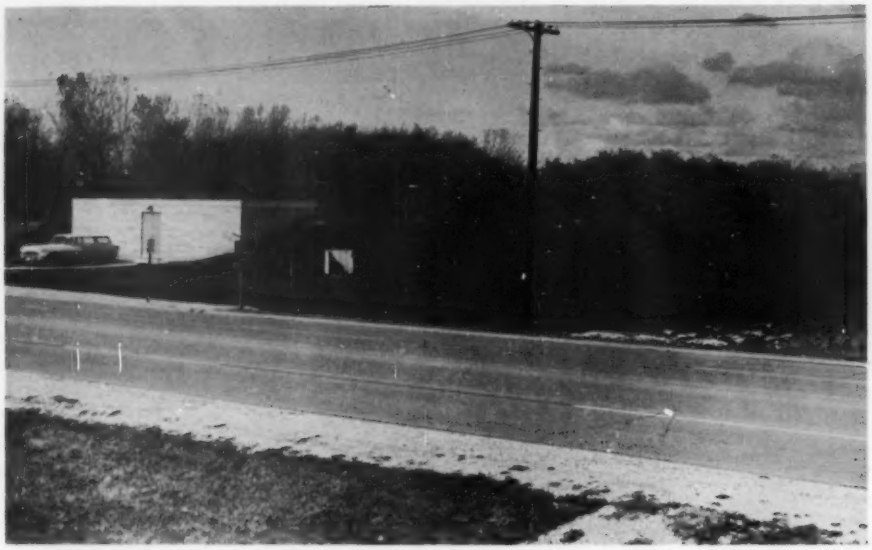
10) Provisions for filling the standpipe during very light periods of load in night hours—except during very high pumping periods.

It was recommended that a firm of consulting engineers be engaged to complete feasibility studies and engineering work as soon as possible so that construction could be started in time to have the standpipe in use by June 1, 1957. The firm of Greeley and Hansen of Chicago was retained to prepare plans, specifications and cost estimates for a 4,000,000-gallon standpipe.

Third Plan Adopted

In December 1956, the engineering firm presented a preliminary report based upon studies made by them. This report established that the originally planned standpipe would have to be 150 feet tall, leading to foundation and construction problems. They recommended construction of a 3,000,000-gallon, ground-level reservoir and a pumping station operated by remote control from the electric plant at an estimated total cost of $300,000.

The Village Council accepted the recommendations and approved preparation of plans and specifications. The plans were completed in time for receipt, August 7, 1957, of eleven bids from competing con-



New 3,000,000-gallon reservoir at ground level was chosen instead of a 150-foot-high standpipe. Pumping station at left is operated by remote control from combined electric and filter plant.

tractors. Successful low bidder was the Keno Construction Company of Highland Park, Ill., and the $244,888 contract for construction of the reservoir and pumping station was awarded to that company on August 20.

The reservoir is 180 feet in diameter and 16 feet deep. Floors, walls and roof are of reinforced concrete, with the roof supported by 69 columns. The 6-mgd, 2-pump, pumping station is 17 feet wide by 45 feet long with a stone veneer exterior.

After a construction start in October, 1957, a severe winter interrupted work intermittently until February, 1958, so it was not until June of that year that all equipment, piping and construction was completed and ready to be turned over to the village. The reservoir was filled in June with water and a strong solution of HTH (calcium hypochlorite) for sterilization. The solution remained in the reservoir for three weeks, then it was pumped to the sewers. The tank was again filled and a number of test samples taken to the filtration plant laboratory. Tests proved that the reservoir had been sterilized and was approved for use.

Operation

Since the reservoir was constructed for emergency supply and use during periods of heavy pumping in the system, it has been emptied and refilled at two-week intervals to retain chlorine residual, palatability and freshness. Though a normal schedule of refilling has been maintained, the electric plant notifies the filter plant before any pumping—in or out of the reservoir—is started or terminated.

As the fill valve is opened for filling, the chlorinator automatically cuts in to apply an initial residual of 0.6 to 0.8 ppm of chlorine to stored water. Samples of this water are tested for residual every Monday, Wednesday and Friday—a testing kit is maintained in the reservoir pumproom for this purpose. Experience to date shows chlorine residual drops every day, to reach approximately 0.15 to 0.2 ppm in ten to twelve days. The stored water is pumped to the system at approximately this level.

If residual chlorine should drop below 0.1 ppm at any time between routine scheduling, immediate steps are taken to empty the reservoir.

Testing

Bacteriological analysis and odor testing of reservoir water samples are performed once weekly—usually on a Friday. These tests, as well as those of samples from the filter plant, are performed by the meter division under supervision of the meter foreman. A brief general inspection of the reservoir and pumping station must be made each time test samples are taken, because the station is unattended.

Pumps, motors and auxiliaries are maintained by electric plant personnel under supervision of the chief engineer. Maintenance of chlorinating equipment and replacement of empty chlorine tanks are performed under the chief operator of the filter plant.

The pressure regulator valve at the reservoir is set to maintain a minimum pressure of 40 psi at the Northfield Village Hall—a customer municipality. Normally, pressures at this monitor point range from 55 to 60 psi. Since routine emptying-filling operations at the reservoir tend to disrupt the normal pressure at the Northfield Village Hall, this village is notified during emptying and refilling operations at the pumping plant.

Microfilming Government Records

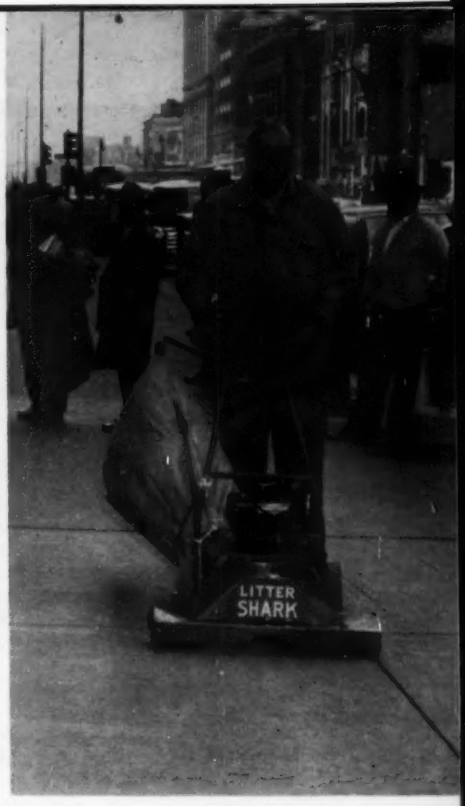
The Jefferson Co. N. Y. Surrogate Court microfilms 1500 estate papers on one roll. The method has replaced bound volumes and is said to be 20 times faster.

Medina Co., Ohio microfilms vital statistics. A record that took 15 minutes to type is now copied in a second without mistakes. Using the Recordak Junior Microfilmer is saving $3,000 a year.

Kentucky's Secretary of State microfilms corporation records at half a cent a page—formerly 15 cents. A year's records are on 12 film rolls and two filing cabinets take the place of a former 65. Recordak Junior here is saving $10,000 a year.

Rochester, N. Y. police file 300 reports a day. These are microfilmed and the originals are destroyed. An 8-year collection of the films fits in a 4-door file.

Coveted award—the Ernest T. Trigg Trophy, grand prize in national competitions sponsored by the National Clean-Up-Paint-Up-Fix-Up Bureau.



The Quaker City's downtown sidewalks are vacuumed by a Tarco Litter-Shark, manufactured by the Tarrant Mfg. Co. of Saratoga Springs, N. Y.

Philadelphia and Detroit Tie for Cleanest City Award

. . . take Grand Prize in National Cleanest Town Contest sponsored by National Clean-Up—Paint-Up—Fix-Up Bureau

The Ernest T. Trigg Trophy, grand prize in the National Cleanest Town Contest has been won by the cities of Detroit and Philadelphia. With many thousands of communities competing in the Clean-Up—Paint-Up—Fix-Up program, entries were judged on the basis of effort and improvement. Included in features considered were:

1) **Education**
2) **Civic cooperation**
3) **Programming**
4) **Presentation of reports**
5) **Promotion methods and effectiveness.**

The two winners—they will receive duplicate trophies — followed similar approaches to all five of these features. Detroit has 33 main committees sponsored by the city's Junior Board of Commerce and representing all segments of civic, municipal, church and school groups, working with the endorsement, counsel and support of an advisory committee. Each of the main committees is responsible for formation of as many sub-committees within its group as may be needed to carry the campaign to every corner of the city. Philadelphia has more than 1,250 Clean Block Committees actively engaged in a program designed to keep neighborhood areas clean. Most of these are concentrated in areas where they are needed most—heavily congested, multiple-dwelling districts. Each of the Quaker City committees, sponsored by the Sanitation Division of the Department of Streets, has a captain who keeps the program alive on a year-round basis in his neighborhood.

Both cities have sought and received cooperation from individuals, commercial groups and communications media. Parades are used in both to carry the message to as many people in the city as possible. While the Philadelphians take advantage of the annual parade and review of city equipment on May 1, by constructing and exhibiting floats with the Clean-Up—Paint-Up—Fix-Up theme, Detroit stages a "kick-off" parade on the first day of Clean-Up Week, with all parade units emphasizing the various activities of the year-long program.

In addition to the parade, the Motor City stresses the CU—PU—FU theme with exhibits in windows of downtown stores. A booth, erected in front of the old City Hall, has been used in past years with some success.

Paint Promotion

Each day of Clean-Up Week, a special activity is planned as a daily theme in downtown and outlying areas. These themes are often used later in the year to excite additional interest and attention. Still another activity is Paint Promotion campaign, in which a special committee chooses a home within the city that receives a paint "blitz" job. The home chosen must belong to a policeman's widow, a fireman's widow, or to a person who is handicapped or truly needy. Thus, a two-fold objective is

achieved—assistance to one in need of help and emphasis on the campaign.

The Clean-Up Week Committee also cooperates with the publicity chairman in conducting a beauty contest to select a Miss Beautiful Detroit, a Miss Clean-Up, a Miss Paint-Up and a Miss Fix-Up. These queens participate in the week-long program and in other promotions that may occur later in the year.

All these are, of course, in addition to the continued routine activities that are carried on at the committee and sub-committee levels.

Accurate records of all promotional material, all meetings and all evidence of success of the program (home action records and improvements in neighborhood conditions) are kept and are accumulated with statistical material for use in the final annual report.

Philadelphia's education efforts are sometimes flamboyant, sometimes given to mystery, designed to create interest, and through interest gain general cooperation. For example, the Sanitation Division painted one basket gold and had the Latin inscription "Ad Hoc" imprinted thereon. The basket was then placed in the City Hall courtyard, geographic center of the city, where thousands of pedestrians pass daily. Sanitation officials reported that the department counted some 75 inquiries as to the meaning of the inscription (literal translation: "to this"—colloquial translation: "to this special use.)"

The city also uses a "saturation plan" with its litter baskets. Certain streets in the city center, selected because of their affinity for litter, are crowded with baskets that employed the slogan: "Get the Idea." Baskets, placed so that there is one at arm's-length distance regardless of where the pedestrian happens to be, cannot fail to "get the idea" across to would-be litterers.

The Philadelphia program also plays up "themes of the month." In March for instance, the poster theme was Irish, and in all parts of the city, leprechauns wielding dangerous-looking shillelaghs admonished, "Sure Now 'n Don't You Be Litterin'."

All these programs have attracted considerable attention and will continue to do so, because Philadelphia, too, promotes Clean-Up—Paint-Up—Fix-Up on a 12-month basis.

This makes the twelfth consecutive year that the Quaker City has earned one of the clean city awards. And one of the most gratifying aspects of the entire record is that, like Detroit, Philadelphia's success is due primarily to cooperation, continued work and enthusiasm of the people, with relatively little assistance from city departments. Posters and other promotion materials are provided by the Sanitation Division. According to officials of the cities, the programs have been effective in stemming urban blight and are responsible for "rehabilitating many neighborhoods from the jaws of decay."

After final judging in Washington, D. C., General Joseph F. Battley, president of the sponsoring National Clean-Up—Paint-Up—Fix-Up Bureau stressed difficulty experienced by the judges in evaluating the entries and commended them for their work. They were: W. Darlington Denit, Director of Inspection, Department of the Interior; James F. Steiner, Manager, Construction and Civic Development, U. S. Chamber of Commerce; and H. B. McCoy, Administrator, Business and Defense Services Administration, U. S. Department of Commerce.

Flies and Mosquitoes Should Stay Away from Iowa

Any program designed to make a municipality an uncomfortable place for flies and mosquitoes apparently wins overall citizen backing in the Iowa municipalities of Burlington, Ottumwa, and Jefferson.

Burlington staged a community-wide "Operation Spray Day" two years ago to raise funds for a mist sprayer and to purchase insecticides. Everyone, including the mosquitoes, turned out in big numbers to make the promotion a success. Typical tests made during the first season of the machine's use showed 13 specimens caught on a test grill prior to the application, and only two afterward. Costs run about $125 per spraying day for material, labor and equipment. The city starts this work just prior to Decoration Day and continues through September at intervals of 30 days.

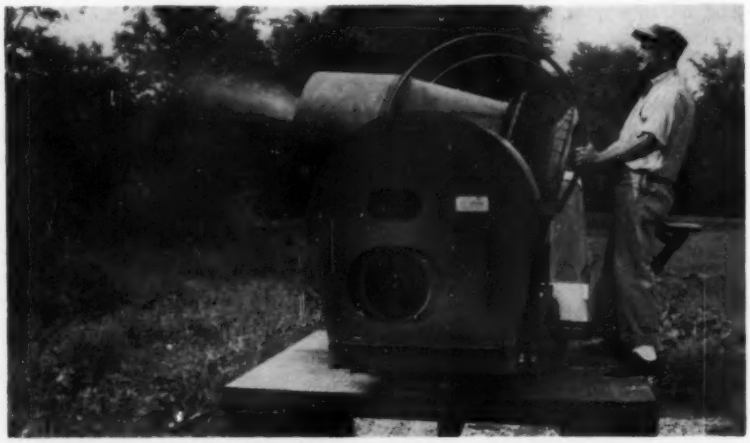
The Burlington program operates under the Des Moines County Health Department. County Sanitarian K. J. Goldsberry reports that the insecticide most effective is a combination of DDT and malathion. Spraying, he points out, is only one part of the program. His crews are continuously at work eliminating breeding places and food sources.

In Ottumwa, water pools created by river flooding in 1954 spark-plugged the insecticide program. After testing various equipment, the city purchased a mist sprayer with an air-volume output of 19,000 cubic feet per minute. Money for the equipment came from the city's liquor-tax fund.

Ottumwa does about 75% of its insecticide work from 6 a.m. to 10 a.m., and the balance from 7 p.m. to 10 p.m. Crews spray the parks once every 10 days, heavily infested residential areas approximately three or four times a year, and certain business sections about twice a year.

Jefferson started its work with a small fog machine but switched to a mist sprayer last year; the money for the sprayer came from the Sanitation Fund.

All three Iowa communities use John Bean mist spraying equipment.



Burlington's jeep-towed John Bean mist sprayer opens fire on mosquitoes near the local ball park.

Yankton's tractor-mounted snow blower can load a truck in about three minutes. This same truck is used for plowing.

Snow Removal—Yankton Style

Small town uses versatility as a criterion to keep special equipment inventory at a minimum

By **ROBT. L. BARTRAM**
City Engineer
Yankton, S. D.

The teamwork and cooperation that helped Yankton win an "All America City" award in 1958 also extend into the winter season. As an example, the people of our town help overcome one of the biggest obstacles in any snow removal program by keeping their vehicles from the areas where snow is being removed. The press and radio contribute their support wholeheartedly by publishing announcements and keeping everyone up-to-date on the progress of the work, areas being cleared, and other information essential to the task.

Such advance notice gives the owners an opportunity to remove their cars ahead of the snow clearing crews. In cases of "dig-outs" city forces help the owners, and in cases of cars left on the street, the city tows them away and assesses the cost against the owners. Fortunately, this latter task must be performed only in rare cases.

A small city such as ours (present estimated population about 10,500) cannot tie up much money in specialized equipment. Consequently, the equipment used in our snow and ice control activities was selected for its versatility.

The work horses of our snow removal operation consist of two one-way plows, one Wausau and one Henke together with one Tarco Scotchman salt spreader and a Swenson sand spreader.

For the job of cleaning up in the business district we use a tandem drive No. 12 Caterpillar motor patrol; a No. 10 Caterpillar; one Bros snow blower mounted on the front of a Case tractor; an Allis-Chalmers HD-6G tractor shovel;

This V plow clears the alleys so that garbage collections can be maintained even during snowstorms.

The two cab-operated, one-way plows are the backbone of Yankton's snow clearing operations.

four dump trucks and a Ford Ferguson tractor. To clear the alleys so that the garbage truck can maintain its schedule of pickups we use a 5-ton FWD truck with a Wausau V plow.

The FWD has a fifth wheel mounted on the back which is used to pull our equipment trailer most of the time. The tractors work at the city-owned asphalt plant during the summer and do other miscellaneous tasks while the sander is used in seal coat operations. Of course the trucks and motor patrols are necessary for regular street maintenance and construction work. The Ford-Ferguson mounts a backhoe and is used by the water department for installing new service lines and for general maintenance. Thus, the only specialized equipment consists of the plows, blower and salt spreader.

Plan of Attack

To clear Yankton's 45 miles of streets, the one-way plows go to work when the depth of snow reaches about two inches. Either the salt spreader or sand spreader, depending on the temperature, works simultaneously with the plows. We use rock salt with Banox when the temperature is around freezing or a little below freezing. For lower temperatures we rely on a calcium chloride treated sand and spread it with the sand spreader.

The highways, hospital areas, stop sign approaches, hills and business streets receive sand or salt on a priority basis. This keeps the snow from freezing onto the pavement, allowing for a much cleaner snow removal job.

We haul snow from the business district only. Normally the No. 12 patrol can handle the job alone, windrowing the snow to the center of the street. A levee along the bank of the Missouri River at a point about a quarter-mile from the business district provides adequate snow disposal facilities. With this short haul our four trucks can keep the snow blower busy. In case of extremely heavy snow falls, we rent private trucks, mount the blower on the Ford-Ferguson tractor and put a one-yard snow bucket on the Case tractor. The bucket unit is then used to load trucks from piles of snow dozed up in areas where drifting has occurred.

Public Notified

Through the media of the press and radio we notify the public as to when snow removal operations will begin. No parking is allowed in the areas where windrowing of the snow is in progress. We usually start this operation around midnight whenever possible.

To illustrate the efficiency of this program, a four-inch snow fall can be cleaned up in about 12 hours—including the plowing of all streets and alleys plus the removal of snow from the business district.

We use salt liberally and feel that it is very effective. However, we still must face public reaction to its use. Through the use of colored Banox as a rust inhibitor and Banox test kits, we have convinced the majority of the people that our ice control practice is not as harmful to concrete or automobiles as rumors would lead them to believe.

Equipment without personnel is worthless, and here too we have a smoothly working organization. During periods when snow is forecast, the plow and spreader operators are subject to call at any time. Should a storm hit at night, the police department notifies Joe Brewer, Superintendent of Streets, who in turn calls in the necessary personnel. Close tabs on weather reports help to maintain a state of readiness and further to set a time for starting removal operations. Finally, to make the job easier for the city crews, almost all of our citizens take their vehicles off the streets.

No "Holidays" Allowed

The Long Beach Gas Department, like many of the older gas utility concerns, has found it necessary to replace much of its older pipeline system. The department is annually replacing more than 100,000 feet of main ranging from 2 to 20 inches in diameter. Most of the pipelines that are being replaced were installed from 1910 (and earlier) to 1930; however, in some locations, pipe that was installed as late as 1946 has been replaced.

Continuous Survey

The department decides what sections of main are to be replaced by using data received from a continuous, comprehensive leakage survey program. Business areas are being surveyed on an annual basis and progress is being made towards surveying residential areas on a five-year or less basis. The department is testing over two hundred miles of pipeline annually.

Because over 75% of the mains are in moderately to very corrosive soils the department has found it necessary to consider means of combating corrosion on their pipelines system. This has been especially emphasized in those areas where mains have been replaced after serving only 12 years. The program for combating this corrosion includes coating of pipe installed, insulating meters at service connections, insulating coated pipe from bare pipe, and use of cathodic protection where necessary. The department has found it most economical to apply these items at the time the new main is installed, and it has therefore incorporated their use with the main replacement program.

The most difficult part of this program is maintaining a void-free or commonly called "holiday"-free pipe coating. The coating applied consists of filled asphalt reinforced with fiber glass and covered with a rag felt outer protective shield. This coating offers very good protection against the soil elements if applied and handled properly; however, if not, its effectiveness is greatly reduced.

To insure the proper application and handling of the pipe coating a systematic inspection is made. The inspection includes laboratory testing of the material used, inspection during coating application for proper thickness, surface preparation, etc., and inspection during and after installation using a "holiday detector" to locate breaks or voids in the wrapping. The department has a Tinker and Rasor Model E-4 detector they use to inspect the pipe above ground and a Tinker and Rasor "Pearson Type" holiday detector for inspection after the pipe is buried.

By use of these procedures, together with the material and inspections outlined above, future maintenance in the Long Beach Gas Department system should be cut to a minimum. Considering the present high cost of labor and materials and the future outlook of even higher costs, this program will pay for itself possibly hundreds of times in years to come.

L. L. BENDINGER
Superintendent, Gas Department
Long Beach, Calif.

The Lauderdale Manors center and patio typify the city-school cooperative policy.

Cooperative City-School Planning Pays Off

Ft. Lauderdale, Fla. uses a single site for both school and public recreation facilities and saves $105,000

By **TEMPLE JARRELL**
Director of Parks and Recreation, Ft. Lauderdale, Fla.

Cooperative city-school planning for the mutual benefit of both agencies can pay dividends. This fact has been proved in Fort Lauderdale by almost a year of trial at the Lauderdale Manors neighborhood playground.

The idea was conceived late in 1954 by the Parks and Recreation Department when we began looking around for a new subdivision for a suitable playground site. None was available. At the same time a survey of the school sites in the county revealed that not a single elementary school had adequate recess or playground facilities. A 10-acre area in the subdivision had been set aside for an elementary school. We immediately contacted the school board and suggested the idea of cooperative planning.

Previously, as in many communities throughout the country, school and park and playground areas had been purchased, developed, and operated separately with little or no consideration given to duplication of equipment. The 35-hour work week and the growing percentage of older people in our society, particularly in Florida, has been creating a great need for a diversified recreation program. We pointed out to the school authorities and the Ft. Lauderdale City Commission that since the largest single expenditure of the local tax dollar goes into schools, more use of school buildings for non-school purposes would bring a better return on the investment.

Our suggestion received a positive reaction from both the school board and the city commission. We proceeded to organize a "City-School Coordinating Recreation Committee" to combine the initial planning of schools, city parks and playgrounds for the use of both city and school groups.

The Committee included the mayor, city manager, director of recreation and parks, the chairman of the parks and recreation advisory board and the chairman of the planning and zoning board as representatives of the city. The schools were represented by the superintendent of schools, the school planner and the chairman of the school board.

The Committee met informally to plan the pilot project at Lauderdale Manors with the following objectives and principles in mind:

1. A desire to relate the development of recreation areas to existing school facilities, density of population and direction of growth of the city.

2. A realization that a school and a playground are generally required in every residential neighborhood and the location of a playground on an elementary or a junior high school site is beneficial if schools are centrally located and possess sufficient play area. Thus, planning for dual use of sites is an advantage to both the school and city. Also, daily and

yearly differences between school and adult schedules will prevent recreation areas from falling idle.

3. A recognition that the school of tomorrow should be constructed so units for recreation activities—auditoriums, gymnasiums, band and orchestra rooms, shops for crafts and woodworking, etc.—will be located away from parts of the building devoted primarily to instructional purposes.

With these principles in mind, the Committee performs the following functions:

1. It prepares a specific plan of development for each prospective school-recreation area and defines the "school" and "city" areas so school buildings and play areas are separate. The dividing lines are on paper only.

2. Reviews the preliminary plans of new school structures and their location, and makes comments and suggestions with a view to possible future use of the plan for neighborhood and community purposes.

3. Where city parks or playgrounds join school land, it recommends design features in the playground areas that will make it adaptable to both city and school use. Both Warfield Park and South Side Park fall within this category.

4. It coordinates plans for the acquisition of park or playground areas with plans for the acquisition of school areas.

5. In places where the city deems a neighborhood recreation area desirable on school-owned land, it arranges a contractual agreement for a school-to-city lease of part of the land for mutual development.

Since these plans were completed 2½ years ago, an excellent working relationship has grown between the city and school board. Lauderdale Manors is the result. The Parks and Recreation Department utilizes the school sites and buildings without charge, and the schools use the city's swimming pool, ball fields and tennis courts without charge (except for special services).

Besides Lauderdale Manors, four other contractual agreements have been arranged for combined use of sites. Specifically, these agreements permit the school board to lease a portion of its land (generally five to six acres) to the city for one dollar a year. The term is for 20 years, and the city has option to renew for another 20. The school board then pays the cost of clearing and grading the area. The city installs a sprinkling system, plants or sprigs grass, constructs ball fields, outdoor shelters or a neighborhood building costing approximately $15,000, and plants trees and shrubs. The city also maintains the facilities and provides a staff for year-round playground operation.

The actual plans for development are prepared by the parks division and approved by the Committee. The entire area is under the jurisdiction of the school during the hours when school is in session (generally from 8 a.m. to 3 p.m.), and under the jurisdiction of the recreation division after school hours.

As I have said, the results have been splendid. Three additional sites are to be ready for playground operation in October. This advanced step in cooperative development and operation by the two separate governmental agencies has gained national recognition by the National Recreation Association. We estimate that it has saved Fort Lauderdale approximately $105,000.

Future plans involve a total of nine school sites. If these plans materialize, it is anticipated that the cooperative agreement will save the city approximately $350,000, for the sites would cost this amount.

Tractor Shovel Rescues Flood Victims

Three rubber-tired tractor shovels with front-end loader buckets waded from house-to-house through five feet of water during recent floods in Canton, Ohio to scoop up stranded residents.

"Those machines certainly saved the day for us," said Wilson J. Myers, service director for the City of Canton. "They plowed through shoulder-high water like a steel whale with a mouthful of Jonahs. They even put the boats to shame. These 80-hp, 14,000-lb. machines were faster and didn't tip in the current."

Recent storms swelled the banks of the Nimishillen Creek and caused the inundation of a 25-block area of Canton's northeast section. During this emergency, any machine that could build a flood wall or rescue flood victims was put into service — including three rubber-tired "Michigan" tractor shovels, called away from their normal road-building, street maintenance and materials handling chores.

The city's mobile equipment soon gave up all hope of building a flood wall in time to harness the raging waters. So the equipment changed course in mid-stream and became sea-going buses.

The tractor shovels proved invaluable in this rescue work. First, the very old and the very young, the crippled, the diseased, the bedridden, and the frightened were scooped from danger and carried away in the machine's big buckets. When the infirm were safely hauled to high ground, the "Michigan" ferried out safely load after load of healthy (though somewhat damp) evacuees.

This is a duty no one expected a tractor shovel to perform but it met the challenge well in Canton, Ohio.

Garden Grove's patching truck is always ready. The roller is in transporting position on tailgate; the 140-gallon bitumen tank (between cab and body) is full and the compressor has built up 80 psi pressure for distribution. Note mobile radio amplifier on cab roof.

Vibrating roller levels compacting materials.

Patching Truck Becomes Multi-Use Machine

Garden Grove, Calif., develops single-use truck to speed street maintenance—gets added benefit as weed killer and centerline eraser

By **SEWARD DART**
Street Maintenance Supt.
Garden Grove, Calif.

In 1958, driven by continuous deterioration of asphalt pavement adjacent to concrete curbs and cross-gutters—and a perpetual patching schedule—Director of Public Works Charles R. Handy authorized street maintenance personnel to develop a special machine that would speed the work and do a better job of surface replacement than conventional hand operations.

The new machine has written its own pages into the city budget. Not only have patching costs been cut by 60%, with patches lasting four to eight times longer, but job production has doubled. In addition, the machine, as originally designed, has been placed into service maintaining weed control along rights-of-way and obliterating white traffic lines that have been superseded by changes in traffic patterns.

Garden Grove's pavement problems are the result of its geographic location. An annual rainfall of nine inches or less eliminated the need for a storm drainage system, so most run-off water is carried by its streets. As in most Southern California communities, lawn irrigation is a constant process and excess water from sprinklers collects in cross-gutters and is carried by automobile tires to the asphalt pavement. As a result, the continually wet condition of the asphalt pavement where it joins the concrete gutter has caused progressive deterioration and a patching program that called for remedial maintenance as often as once a week.

The street department launched a series of experiments, trying several methods of patching. Each method was tested with different types of oils and asphalt emulsions before equipment was specified.

A major series of experiments was conducted to find a type of fuel, tank and torch best suited for drying out areas prior to patching. Petrolane Gas Service of Long Beach, Calif., aided in this portion of the study, which resulted in the purchase of a 50-gallon fuel tank and a vapor hand torch, Model SE-270-C, both manufactured by Manchester Tank and Equipment Co., Lynwood, Calif. The tank was mounted on the side of a 1½-ton Ford dump truck. The relatively

Prior to patching, area is dried out by high-pressure propane torch with 25-foot hose from 50-gallon tank mounted on right side of truck.

large fuel supply tank was chosen in order to avoid freeze-up and loss of pressure. Had a smaller tank been used, it would not have supplied the vapor pressure needed to keep the torch in sustained operation. It also was found that propane fuel (boiling point —44°F.) was best. Butane, with a boiling point of 32°F would not vaporize rapidly enough to maintain continuous burning.

A 25-foot length of ¼-inch liquid petroleum gas hose connects the tank and light-weight torch, allowing coverage of a large area. The torch is used at tank pressure and produces a broad 60-inch-long flame that is ideal for drying blacktop surfaces.

There is a separate pilot control, combined with a trigger-controlled main valve; the combination makes the hand torch very simple to light and operate.

To complete the equipping of the truck, the Essick Manufacturing Co., of Los Angeles, mounted a 140-gallon Essick Model ES-120-S Emulsion Unit (bitumen tank) between the cab and body of the truck, together with an 80-psi Essick-Quincy, Model 212 air compressor. Each day this unit is loaded with RS-1 oil, which provides a sufficient supply for a full day's operation.

Maximum Compaction

To provide maximum, high-density compaction, an Essick VR-28 Vibrating Roller was purchased. The self-propelled unit produces compaction equal to that of an eight-ton tandem roller on asphalt, yet it weighs only 900 pounds. Its single 28-inch-diameter roll vibrates at 4,500 rpm and requires only guidance by the operator as it travels in either forward or reverse gear at rates of 60 fpm or 115 fpm. Because of the machine's high-density compaction of asphalt, traffic can roll over completed areas immediately after patching, thus eliminating barricades and blinker lights.

The roller unit is equipped with carrying hooks for transportation on the tailgate of the patch truck. Trailers and extra equipment are not necessary. The dump body of the truck is raised to the half-high position so that the roller may be hooked to the tailgate—or disengaged from it—at the next patching site. This feature alone has saved considerable time and has lowered equipment costs substantially.

Operation

Prior to the development of the patching truck and method now used, Garden Grove was forced to patch some areas as often as once a week, with costs running extremely high. The new equipment and following method have been highly effective.

After drying out intersections with the torch and removing dead plant-mix material, RS-1 is applied as a tack coat. Then a bituminous surface material (Topeka top mix, using 85/100 penetration asphalt), is spread, luted, raked, and rolled, with paving built up a quarter of an inch above the top edge of the concrete gutter.

After thorough compaction by the Essick roller, an RS-1 emulsion seal coat is applied at about .15 gallons per square yard. To mop up any extra emulsion, Topeka top mix is broadcast over this oil and the spot is once again rolled.

The patching truck is equipped to handle almost any situation encountered. It is provided with a mobile radio and can be dispatched to a trouble spot minutes after the condition is reported.

Other Uses Developed

The most effective weed control method Garden Grove has ever used was made possible through use of the new patching truck. The Manchester torch on the unit is now scheduled regularly for burning weeds along curbs, roadsides and drainage ditches.

The 3,000° low pressure flame is fanned over tall green weeds, causing them to wilt and die. Allowing a few days for the wilted material to dry, a second pass is made, and the dried material is reduced to fine ash, requiring no disposal. This two-pass treatment has saved on fuel and burning time, because it is difficult to burn large green weeds completely in one application of heat. It has been found that burning also has helped to control regrowth, because weed seeds are destroyed in the process.

One more dividend provided by the patching truck has been the adaptability of the torch unit to burning white traffic lines from streets. The propane torch obliterates these lines more cheaply than other methods—and it does a cleaner job.

Thus, what was originally designed and equipped as a single-purpose vehicle can be found on the road every day, doing varied jobs and paying off handsomely on every project.

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- Exclusive bucket position indicator.

Ford Motor Company

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New Ford Industrial Tractor with 12 ft. Backhoe

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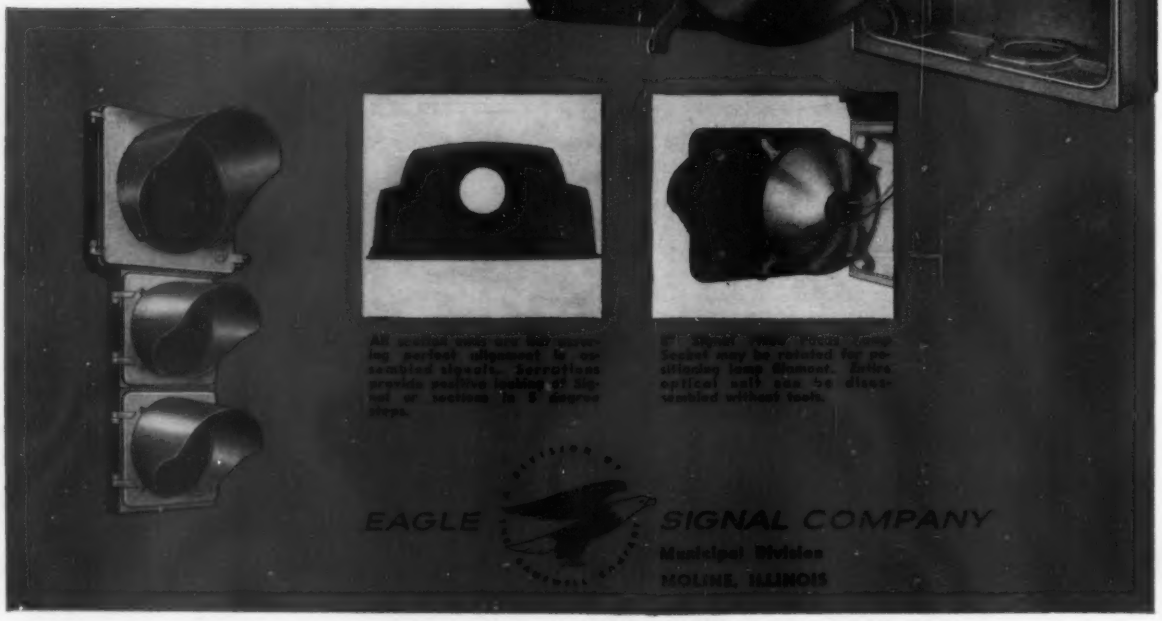

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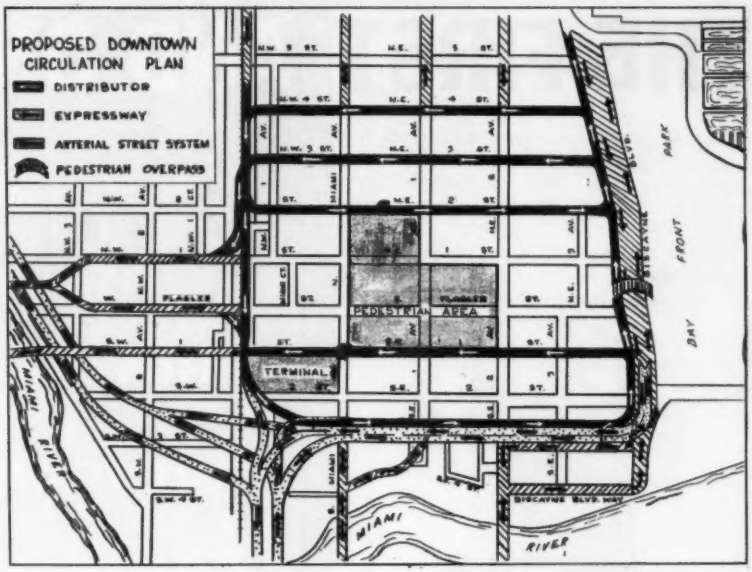
Miami To Upgrade Its Downtown



By **ARTHUR E. DARLOW**, Director, Department of Engineering, Miami, Fla.

The downtown areas of most of America's important cities are facing a crisis. While suburban areas are building feverishly to keep pace with the needs of expanding metropolitan populations, the once all-important Central Business Districts have reached a standstill.

Miami is one of America's important cities. It, too, faces the crisis. Like America's other downtown areas, Miami's Central Business District is of great economic importance to the city and to the metropolitan area that it serves. Here are some of the reasons:

- **Its 500 retail stores account for $140,000,000 in sales annually.**
- **It employs over 30,000 workers (10% of the entire county's non-agricultural employment) with an annual payroll of $100,000,000.**
- **It pays $1,670,000 in real and personal property taxes to the City of Miami each year. This represents 12% of the city's total.**

In short, the Central Business District is the heart of our community. Its failure would have a tremendous impact on the entire area. Because of this, a study of Downtown Miami appears in order.

There are 50 blocks within the designated boundaries of the Central Business District. However, 60% of all persons going downtown have their principal destination in an eight-block core area. Of these, 48,000 (or 45% of downtown's visitors) are destined for a five-block core area. In addition, many of those whose principal destination is outside this area, also make stops here. As an example: one store located in a block in which 7,500 people have their principal destination is, in itself, visited by 15,000 people daily. These five blocks are truly the core of downtown activity.

Downtown's three big problem hours are:

9:00-10:00 a.m. when 14,000 people are trying to get in.
12:00-1:00 p.m. when 35,000 people are present.
5:00-6:00 p.m. when some 17,000 people are trying to leave.

Downtown Difficulties

Unfortunately, going downtown has obstacles. Included are:

- **Traffic bottlenecks en route.**
- **Traffic circulation difficulties in the downtown area itself.**
- **Less convenient and more costly parking by comparison with outlying areas.**
- **Restricted freedom of pedestrian movement.**
- **A certain amount of drabness and disorder when compared with newer centers planned and developed as a coordinated, attractive unit.**

These obstacles fall under the classification of (1) accessibility, (2) circulation, (3) terminal facilities, (4) pedestrian movement, and (5) atmosphere.

There is sufficient incentive for people to want to go downtown. Reduce the obstacles that confront them and this incentive will develop a flourishing Central Business District.

Mass transit gives the Central Business District one of its greatest advantages; it makes downtown accessible to those for whom a private car is not

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2 component

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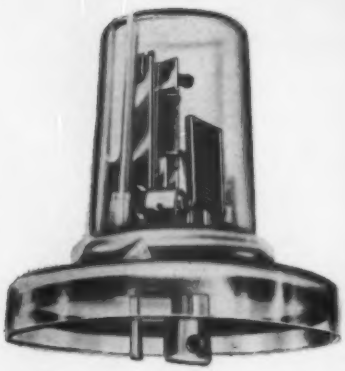
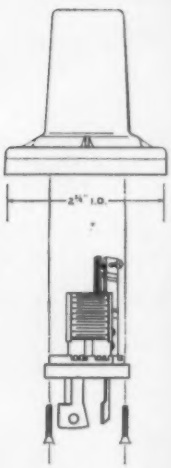


2 components switch and cell



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TRAFFIC CONTROL

available. In spite of the greater popularity of the automobile, more shoppers go downtown by bus than by car. In fact, one-third of all bus riders downtown are women shoppers, arriving during normal daytime working hours. It can logically be assumed that many, or most of these do not have the family cars at their disposal at that time. Where they went was therefore largely determined by where they could go by public transit. As the focal point of the transportation web, downtown reaps this harvest.

Mass Transit, the Greatest Tool

Many things are being done (from the building of expressways to the validation of parking tickets), to entice people into downtown areas . . . in their automobiles. But land use in downtown areas is so intensive that any attempt to accommodate private transportation under all circumstances is not feasible. Still the ratio of vehicular traffic to transit traffic in the downtown area increases steadily. Under present and improved future conditions, downtown Miami can handle more people than it can automobiles. Therefore, through mass transit lies the greatest tool in getting the most people in and out of the downtown area. It must be exploited to its greatest possible potential.

Currently, nothing is being done for the transit rider. Nothing to preserve the existing passengers, and most certainly nothing to attract new ones. Serious consideration should be given to a mass transit fare validation program for non-peak hours. Such a program could:

Encourage a vast new force of business and shopping trade for downtown.

Help stem the flow from mass transit to private vehicle which is both congesting the downtown area and costing untold millions in highway and parking improvements.

Help offset the loss being encountered by transit companies as a result of maintaining and manning buses which are now used only a small fraction of the time. This in turn would permit better transit service for all.

"Park-Ride"

A special member of the mass transit family is Park-Ride; a combined operation which makes the most effective use of private vehicles and mass transit. By driving to conveniently located parking lots outside the downtown area and transferring to shuttle buses for an express ride downtown, a highly efficient operation for getting people downtown can be achieved.

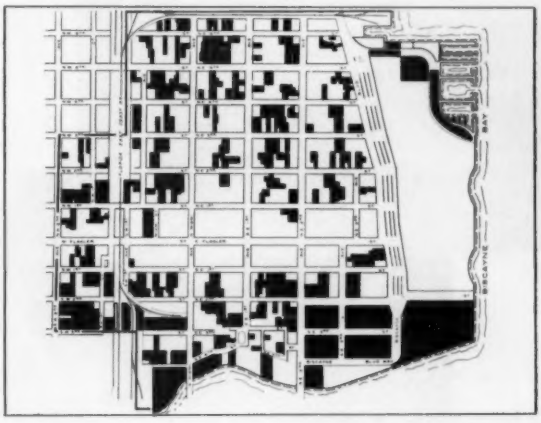
Miami's Park-Ride operation was inaugurated in May 1955, offering free parking at the spacious Orange Bowl parking facilities and a two-mile express bus ride downtown for a ten-cent fare each way. For four years Park-Ride barely held its own. As a result of a recent survey, a new plan was inaugurated. Under this plan the downtown merchants and businessmen pay the bus company $120 daily and Park-Ride is operated on a free basis from 9:30 to 4:30. As the average shopper spends slightly over five dollars per trip, 1,500 shoppers could bring $7,500 into the downtown area for a $120 investment.

A five-point program is necessary to facilitate the flow of traffic to the downtown area. This program includes:

- **The proposed Expressway System for Dade County.**
- **The Official Arterial Street Plan for Miami.**
- **A modern system of interconnected traffic signals.**
- **Replacement of obsolete bridges crossing the Miami River.**
- **Elimination of the railroad crossings and depot in the downtown area.**

Realization of these improvements will combine to provide this area with the most efficient traffic circulation system within practical limits, and one capable of transporting as many vehicles to the Central Business District as it can accommodate.

The construction of Miami's Expressway System, plus the recommended changes to the arterial street system will provide maximum practical access to the Central Business District. But, the existing downtown circulation system cannot properly handle even the traffic it now receives. Therefore, the next problem is that of providing adequate circulation within the downtown area.



Off-street parking facilities.

Three factors contributing to the congestion of our downtown streets are:

- **Through traffic amounting to 28% of downtown traffic.**
- **Vehicles with downtown destinations often have to weave through eight or ten blocks of downtown traffic to reach their parking destination.**
- **The traffic signals, so necessary for the present grid street system, reduce the capacity of any given street as much as 70%.**

The plan for achieving inner circulation is shown by the diagram on page 123. The plan consists of: (1) a system of primary loops encompassing the Central Business District; and (2) a system of inner loops penetrating the core area.

Here is how this system would affect the aforementioned three basic factors that contribute to downtown traffic congestion:

Through traffic could not pass directly through the downtown area even if it wished. This traffic would be channeled onto the distributor and thence onto the

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expressway or arterial street system on the other side of downtown.

Traffic with destinations in the Central Business District, after leaving the distributor, would travel only around a one- or two-block area to reach their parking facility. They would then be channeled back onto the free flowing distributor. There would be no cruising around the downtown streets. The major movement would be on the distributor, and the inner streets would be used only as the driver neared his destination.

Signals for vehicular movement would be practically eliminated. Thirty-four existing signals in the core area would no longer be needed because traffic would be channeled. The reduced amount of traffic on each of the inner loops would also reduce the need for signalized pedestrian crossings.

Practical Capacity

The practical capacity of the downtown street circulation system is about 5,000 vehicles per hour. It is estimated that the proposed circulation system can increase the capacity by 40%; at the same time, the use of certain existing streets can be limited to pedestrian use only, thus creating a pedestrian reserve or mall area.

The distributor principal is not new. It has long been recognized as a means of diverting bypassable traffic. The major difference in the plan proposed for Miami is that the loop is used also for distributing downtown traffic onto a system of penetrating inner loops.

This plan also differs from the "ring around town" approach which restricts parking to outside the distributor. Such a plan eliminates most existing facilities and necessitates great expense for the construction of new parking accommodations. With the plan herein proposed, parking is permitted both outside and inside the distributor.

Parking

In comparison with other metropolitan areas of similar size, downtown Miami is well above average in parking accommodations. At last count there were in existence 16,479 spaces, or 25% more than in comparable areas. Over one-fourth of the entire land area of downtown is utilized for parking.

It stands to reason that downtown can never be a drive-in center comparable to the suburban center. The ultimate development of parking facilities will be dictated largely by the capacity of the downtown circulation system and by the competition between parking facilities and commercial development for available land. On the basis of the proposed circulation system and current parking habits, downtown could use an estimated 21,000 spaces.

A Downtown Bus Terminal

The proposed downtown circulation system will channel mass transit as well as private vehicles onto the distributor. It is desirable to deposit the transit rider as close as possible to his destination. But this must be consistent with the most efficient use of downtown facilities.

Currently during an average peak hour, 158 buses from 37 different routes crisscross through downtown streets picking up and discharging passengers at some 21 major points. This existing system of curb loading leaves much to be desired. Among its principal disadvantages are:

- **Very congested and unpleasant loading conditions.**
- **Interference with pedestrian traffic, which is sometimes stopped altogether by congestion at bus stops.**
- **Inconvenient transfer between routes that do not share a common stop.**
- **Friction between the erratic movement of buses and the free movement of traffic.**
- **Uncomfortable waiting conditions during inclement weather.**

These conditions discourage the use of mass transit. They could be drastically reduced through the construction of a downtown bus terminal.

An expensive terminal building need not be constructed at the outset. The acquisition of the site and provision of a minimum amount of shelter for waiting passengers could get the "terminal" successfully under way.

The construction of the terminal building lends itself to several possibilities. Included are such things as the incorporation of shops or possibly even a parking garage. However, it is imperative that any such additional functions in no way interfere with the primary purpose of the facility.

The success of a bus terminal is predicated on the construction of the distributor. There is serious doubt that a terminal without the distributor could operate successfully, given Miami's present downtown traffic system.

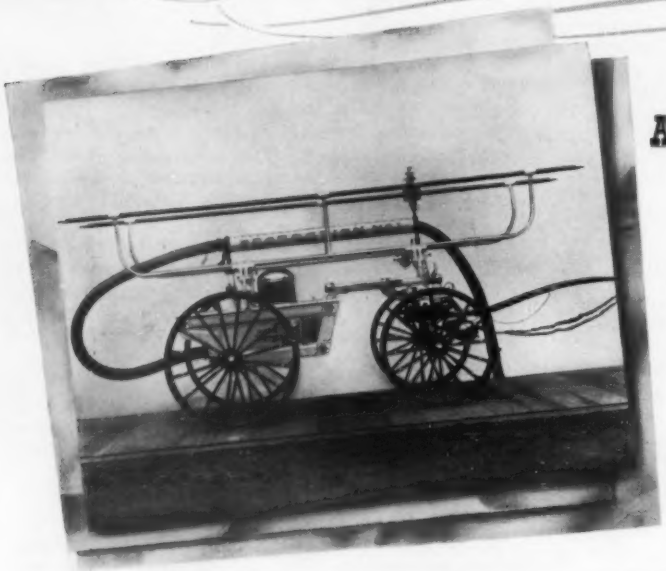
Pedestrian Movement

All persons visiting downtown must ultimately become pedestrians. With the exception of the five-block core area, existing sidewalks are adequate. The two bottlenecks which hinder pedestrian movement in the core area are the two arterial streets and the bus stops. The congestion at bus stops would be eliminated by a bus terminal. The best way to overcome the interference from the vehicular traffic in this center of pedestrian activity is to remove the vehicles. Fortunately, the proposed downtown circulation system (see diagram) permits this with little effort. Under the proposed plan there is no need to drive upon any downtown street that does not afford access to a parking facility. Closing the five-block area to vehicular traffic would not prevent access to any offstreet parking.

Once the area is closed to vehicular traffic (provision must be made, of course, for access of emergency vehicles), it can be converted into a pedestrian reserve or mall area. The creation of such an area would more than double the present pedestrian capacity. In addition, it offers the opportunity to develop these five blocks into a pleasant and attractive shopping and business center, providing downtown with a much needed focal point. The increased value of the five-block area would dictate that it be occupied only by the choicest shops and businesses.

However, a word of caution. Any downtown area has a certain charm or character that it has built up over the years. This includes Miami despite its relative youth. Care must be taken in any all-out program of "beautification by modernization," not to let enthusiasm for the advantages of the new completely destroy the character and the charm of the old.

The 125th Anniversary



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We are celebrating our 125th Anniversary this year. Both the fire service and American LaFrance have come a long way since 1834. American LaFrance had its beginning that year when the Button Fire Engine Works was established. Hand drawn, hand operated pumpers were produced for several years before steamers were built in America.

American LaFrance has progressively developed with the fire service needs. From hand pumpers, steamers, horse drawn aerial ladder trucks, and self-propelled steamers to motorized apparatus, American LaFrance production covers the longest period of continuous manufacture of fire engines in the world.

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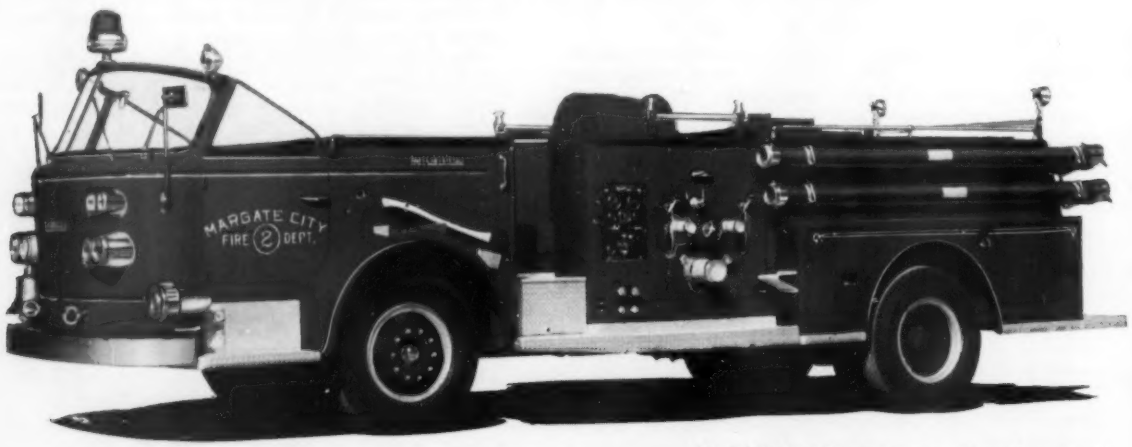

Model INVADER, 750 g.p.m. Class A, semi-cab.

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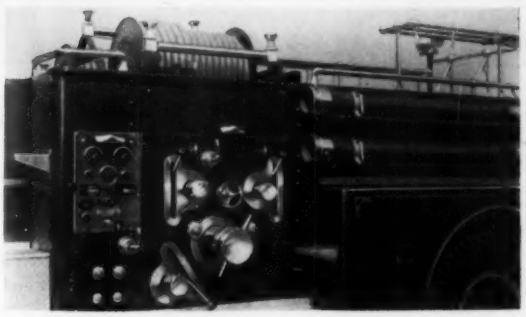

Pump controls grouped for accessibility. All pump operating gages, engine throttle, pump primer control, and pump pressure governor control are mounted on a removable panel, indirectly lighted for night operation. All discharge gate controls, transfer valve, water tank valve, bleeder valves, auxiliary cooler, radiator fill and booster cooling line valve are located for operator's convenience.

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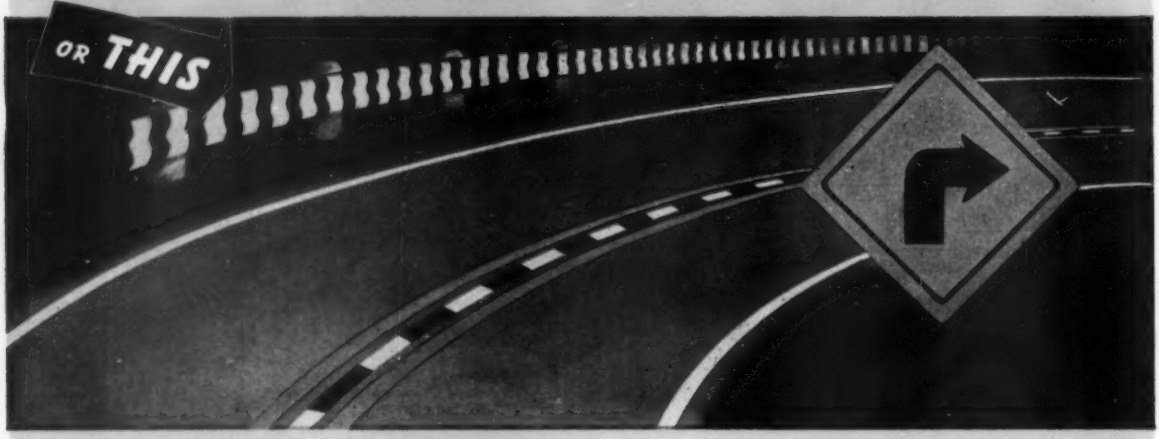

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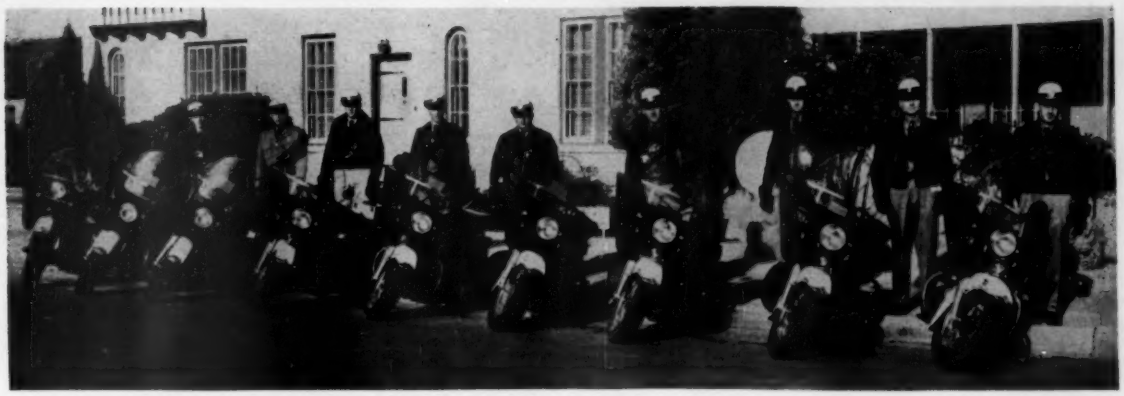
- **831 REFLECTIVE GLASS BEADS**—Best for white and yellow signs. Meet and exceed all test requirements . . . microscopic, acid, sodium sulphide, spherical content, gradation.
- **FREE-FLOWING REFLECTIVE GLASS BEADS**—Won't agglomerate. Contain no injurious waxes, oils or resins. Offer perfect adhesion to any suitable traffic bead binder. Economical.
- **TYPE H SAFETY SPHERES**—Approximately fifteen times brighter than standard highway beads. For reflectorizing guard rails, curves, bridge abutments, safety islands, etc. Offer maximum reflectivity at lowest cost.
- **FLEX-O-LITE FREE-FLOWING TRAFFIC LINE BEAD DISPENSER**—New, simplified. Affords years of trouble-free operation. Ideal for municipal and highway use. Attaches to any traffic line paint machine. Satisfaction guaranteed.
- Ask about our Sign Bead Applicator.

FLEX-O-LITE MFG. CORPORATION

8301 FLEX-O-LITE DRIVE • P. O. BOX 3066 (AFFTON BRANCH) • ST. LOUIS 23, MO.



This is the expanded motorcycle squad of the San Angelo, Tex. police department. Four more will be added for the coming year.

Motorcycles Are Good Traffic Controllers

The Police Department of San Angelo, Texas doubled its motorcycle squad in the last year and expects to add about four more men the coming year.

Harley-Davidson motorcycles are used on escorts of all kinds, including parades. The chief use is on traffic control. With a city of 70,000 population in an area of 32 square miles, we find motorcycles have been the most effective method of traffic control.

We do not employ motorcycle officers as such; we employ the officer and train him to ride when needed. During the past year we have had no accidents with motorcycles. They have proved themselves very handy and economical.

AVA SMITH
Chief of Police, San Angelo, Texas

San Juan Cuts Congestion

San Juan, Puerto Rico has built a free parking lot close to the congested downtown area and shoppers get what amounts to free rides to and from the business district. The lot has room for 800 cars and is open from 7 a.m. to 7 p.m. Municipal guards protect the cars during these hours, and are not permitted to accept tips.

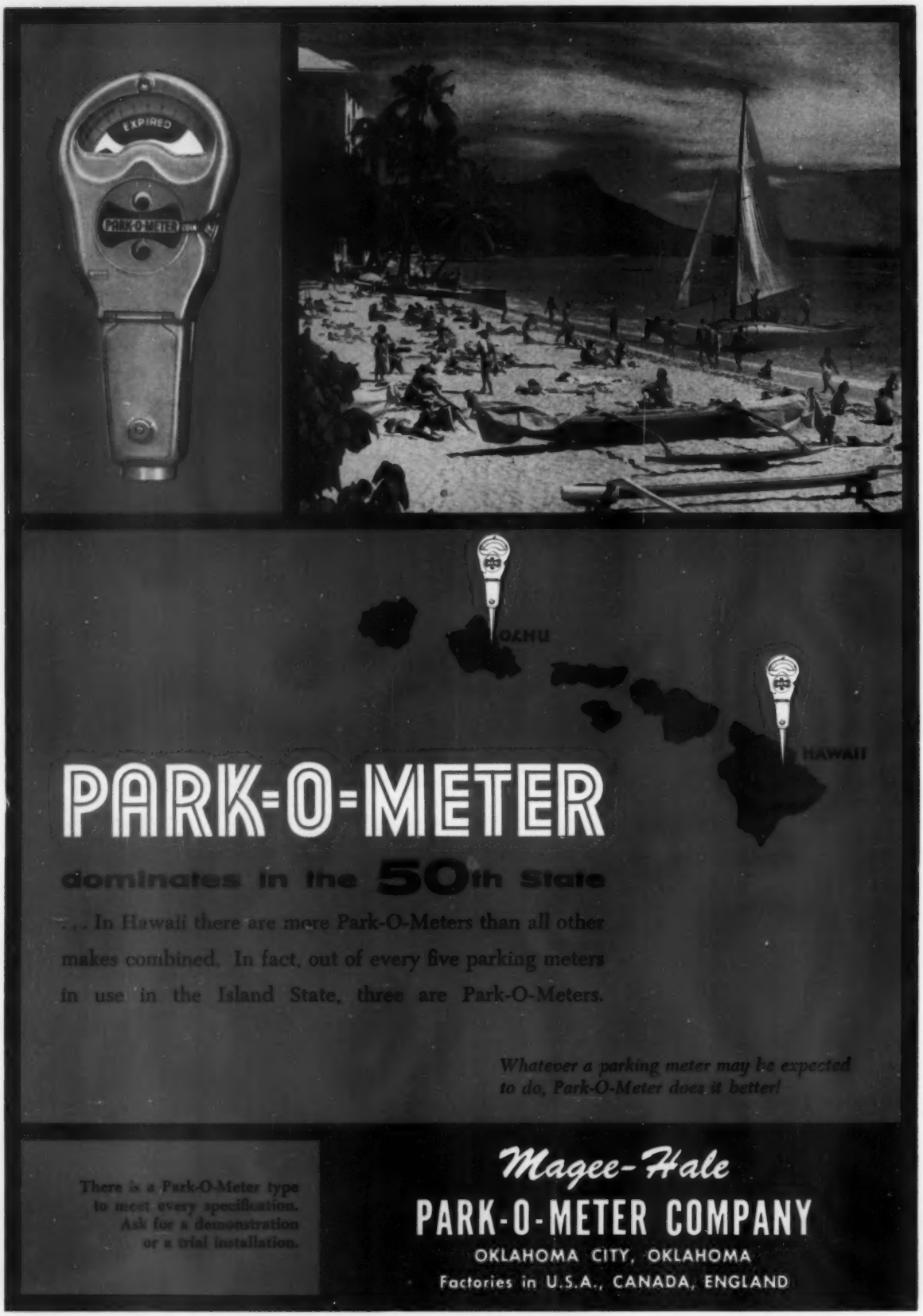
At the lot, the shopper boards a city bus for five cents (half the regular fare) and receives a ticket good for five cents toward any purchase of a dollar or more in any San Juan store. Returning to the parking lot, the shopper pays another five cents and receives another ticket worth that amount in the stores; the effect is to make the bus ride free to shoppers.

Downtown merchants in San Juan, like those in so many American cities, are meeting strong competition from the ever more numerous suburban shopping centers. In Puerto Rico, six huge new centers are planned for the coming year, with companies like Grand Union, W. T. Grant, F. W. Woolworth, S. H. Kress, Lerner's, and Thom McAn planning to operate stores.

The downtown parking lot cost $15,000 and was established by the San Juan City government, the Committee for the San Juan Commercial Center, the Metropolitan Bus Company, and the Port Authority.

Box-Truss Sign Span

Bridge over the James River built as part of the Richmond-Petersburg Turnpike in Virginia, with 88½-foot box-truss sign span manufactured by Pfaff & Kendall, Newark, N. J. Made of aluminum with twin tapered aluminum supports, the span covers six full traffic lanes without a center support.



PARK-O-METER

dominates in the 50th State

... In Hawaii there are more Park-O-Meters than all other makes combined. In fact, out of every five parking meters in use in the Island State, three are Park-O-Meters.

Whatever a parking meter may be expected to do, Park-O-Meter does it better!

There is a Park-O-Meter type to meet every specification. Ask for a demonstration or a trial installation.

Magee-Hale

PARK-O-METER COMPANY

OKLAHOMA CITY, OKLAHOMA

Factories in U.S.A., CANADA, ENGLAND

North Liberty Street under 20,000-lumen whiteway lighting.

The Light on Winston-Salem's Streets

By R. W. NEILSON, Director of Public Works

Street lighting in Winston-Salem, N. C., is installed, operated and maintained by the Duke Power Co., under contract with the city, with rates based on the size and type of light and the kind of pole.

For many years prior to 1954 there was very little progress in street lighting, and apparently there was very little interest in the matter either on the part of the city authorities or the public in general. However, in 1954 there was an awakening to the need of better street illumination and definite steps were taken to improve the situation. There was no change in the downtown whiteway system until the fiscal year 1954-1955.

Realizing the need of improvements in the street lighting system, city officials in 1954 asked the utility for a plan for modernization of the downtown area and of major streets. At that time the existing lighting in this area was as follows:

1. **Whiteway**
   1.90 miles consisting of 210 6,000-lumen incandescent lamps.
2. **Streets (principal)**
   37.5 miles consisting of 66 1,000-lumen and 454 2,500-lumen, and 31 4,000-lumen incandescent lamps.

The plan was submitted to John M. Gold, City Manager, who in turn presented the plan to the Mayor and Board of Aldermen, who approved the lighting modernization.

Whiteway lighting was expanded from 1.9 miles to 3.90 miles and the incandescent lamps were replaced with 20,000-lumen mercury vapor luminaires.

The merchants in the downtown area, along with the general public, were highly pleased with the completed project. In referring to the new lights, Ernest Yarbrough, managing director of the Winston-Salem Retail Merchants Association, said: "The new lights are of tremendous value to the business district." Mr. Yarbrough was author of the Winston-Salem Christmas lighting article in the December 1958 issue of THE AMERICAN CITY.

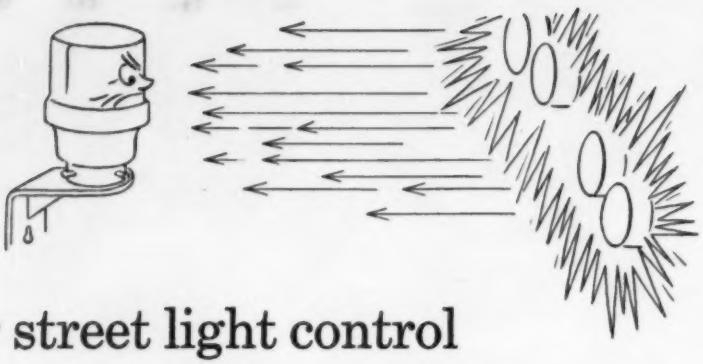
The city has annexed 10 square miles of territory around the perimeter of the old city limits. On January 1, 1957 these new areas became eligible for city services, including street lighting. Over 600 lights were installed as follows:

1	**20,000-lumen mercury vapor light**
38	**6,000-lumen incandescent lights**
49	**4,000-lumen incandescent lights**
532	**2,500-lumen incandescent lights**

The major street project in our city is officially designated as the "Interstate Expressway" which passes through the central area of the city and is approximately 6 miles in length within the corporate limits. The middle section of this project passes through the downtown area of the city and is about 2.63 miles long. This section is nearing completion, and it is with this part of the highway that we are immediately concerned in the matter of street lights. Thus far, 250 General Electric 20,000-lumen lights have been installed.

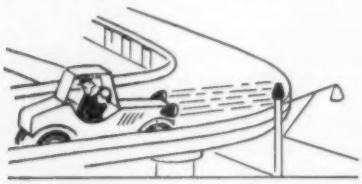
Winston-Salem's Street Lights
On Jan. 1, 1959

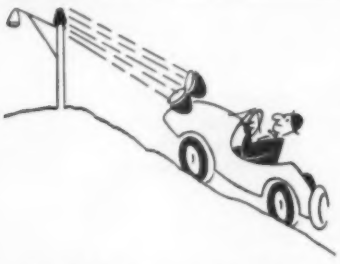
Number	*Lumens*
6	**21,000**
651	**20,000**
40	**15,000**
547	**6,000**
247	**4,000**
2,645	**2,500**
416	**1,000**



When your street light control sits right in the path of somebody's headlights..

. . . the photoelectric control may switch and turn off the streetlight — IF the headlights are bright enough, come close enough and the control looks them straight in the eye.

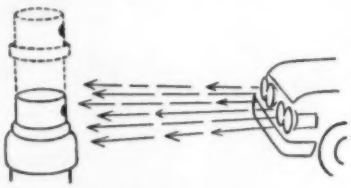




In the majority of cases, though, this problem never comes up because the control sits 30 feet in the air, well above the confusion of headlights. But in those rare instances where it *might* happen, here's why there's no cause for alarm.

With Fisher-Pierce photoelectric controls, the key to the problem of bright transients lies in their distinct *directional* nature. It so happens that this is one of the reasons we make our controls directional—so they *can* look away from the source of confusion. And that is also one of the answers: turn the control around a little so its photosensitive element doesn't get the full, four-light, high-beam benefit of Detroit's latest creations.

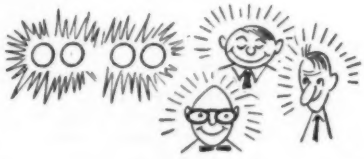
Solution #2 depends on the "flat top" characteristic of most headlight beams, and is practically as easy as number 1: raise the control just enough to put it a whisker above the beams. In some cases this may turn out to be only a foot or so.



Some control installations (e.g., on luminaires) won't permit any change in the height of the control, so re-orientation is the answer. And when you depart from the generally northward orientation of F-P controls, you've got 90° to play with between NW and NE.

We know this works because we tried it, and the only surprises were how little re-orientation or height-changing did the trick. The automobiles used had four good bright headlights apiece, the controls were 6600A types, and just to get an idea of the light levels involved we made readings at the control with an illumination meter. When the car got within about 50 to 60 feet of the control, coming head on with the control at the exact level of the headlights, the control saw enough light to turn off. But in every case, either re-orienting or elevating the control prevented turn-off. We even tried it with the headlights only 10 feet away — which put 160 foot-candles on the control — and 12 inches of control-raising stopped the turn-off.

That's our story on the headlight problem, put in print because it does concern some people. We've never heard of a situation that can't be remedied by one method or the other. But if you run into one, we'd like to hear about it and help if we can. These new headlights are bright, all right —



but we think the people who put up the controls are a lot brighter. The Fisher-Pierce Co., 94 Pearl Street, So. Braintree 85, Massachusetts.

FISHER PIERCE

PHOTOELECTRIC LIGHTING CONTROLS

AN AFFILIATE OF SIGMA INSTRUMENTS, INC.

Now it's a pleasure to shop in Somerville's newly relighted business district.

Somerville Picks Fluorescents

Somerville is one of the few municipalities in New Jersey and the only one in Somerset County that has adopted fluorescent lighting.

Borough Engineer Ellsworth S. Van Fleet reported that Somerville, with a population of about 15,000, is a retail trade center for 50,000 people and is competing with a newly-established shopping center on the outskirts of town. "We are convinced that sufficient parking, attractive stores and adequate street lighting are the answers to the shopping center threat to any town or city," Mr. Van Fleet said.

Business Streets

Somerville has replaced outmoded lighting on business streets leading into Main Street with new Westinghouse 10,000-lumen incandescent units. On Division Street, the principal business artery of Main Street, new Westinghouse 21,000-lumen fluorescent units were erected on new aluminum poles, manufactured by Pfaff and Kendall. These new fixtures replaced the existing 4,000-lumen units on antiquated, decorative iron poles.

On Main Street itself, a six-block business section has seen the last of 62 old pendant-type cast-iron pole units. They have been replaced with 36 new 21,000-lumen Westinghouse fluorescent units on bright, graceful aluminum poles (Pfaff and Kendall) mounted at heights of 25 feet. The 36 new lights produce twice the light output of the 62 old-style lamps.

This "before" shot of Main Street shows why the new lighting was installed.

EDMOND C. POWERS
Street and Highway Safety Lighting Bureau
Cleveland, Ohio

Good-by Philadelphia Gaslights

The date for the end of the gaslight era in Philadelphia, Pa. and completion of the electrification of the city's street lighting system was April 15, when Mayor Richardson Dilworth turned off the last city-owned gas lamp. The first was installed in 1836 and in 1927 39,557 were in use.

Ten-Year Program

It was not until 1950 that the 10-year program to replace them completely was started. Over the 10-year period, the City Council has appropriated the sum of $3,000,000 for the gas lamp replacement program alone.

Streets Commissioner David M. Smallwood credited Harold E. Mason, the department's street lighting engineer, with spearheading the city's program for electrifying and improving the entire street lighting system.

"We are extremely gratified that the Franklin Institute has accepted the last gas lamp as a permanent exhibit," Smallwood said, "for they will always be a part of the city's history and growth."

Conventional or cab-forward

Mack B-model, 1250-gpm semi-cab, triple-combination pumper

Mack B-model, 4-wheel, 100' Mack-Maginis aerial

Mack C-model, 1250-gpm semi-cab pumper

Mack C-model, 1000-gpm canopy-cab, triple-combination pumper

. . . they're all

"Built Like a Mack"

When you select Mack fire apparatus you know you will get the characteristics and performance you want and have a right to expect. Mack will deliver the unit that exactly meets YOUR needs: cab-forward or conventional models . . . brakes, rear axle ratios, transmissions—standard or automatic—and chassis design for your own particular needs . . . built with famous Mack components to meet your most exacting requirements.

Mack fire apparatus is built to the highest standards in the industry. For sheer dependability, nothing can touch it. For sustained performance with only routine attention, nothing can match it. You can always depend on a Mack. Mack Fire Apparatus, Allentown, Pennsylvania. In Canada: Mack Trucks of Canada, Ltd., Toronto, Ontario.

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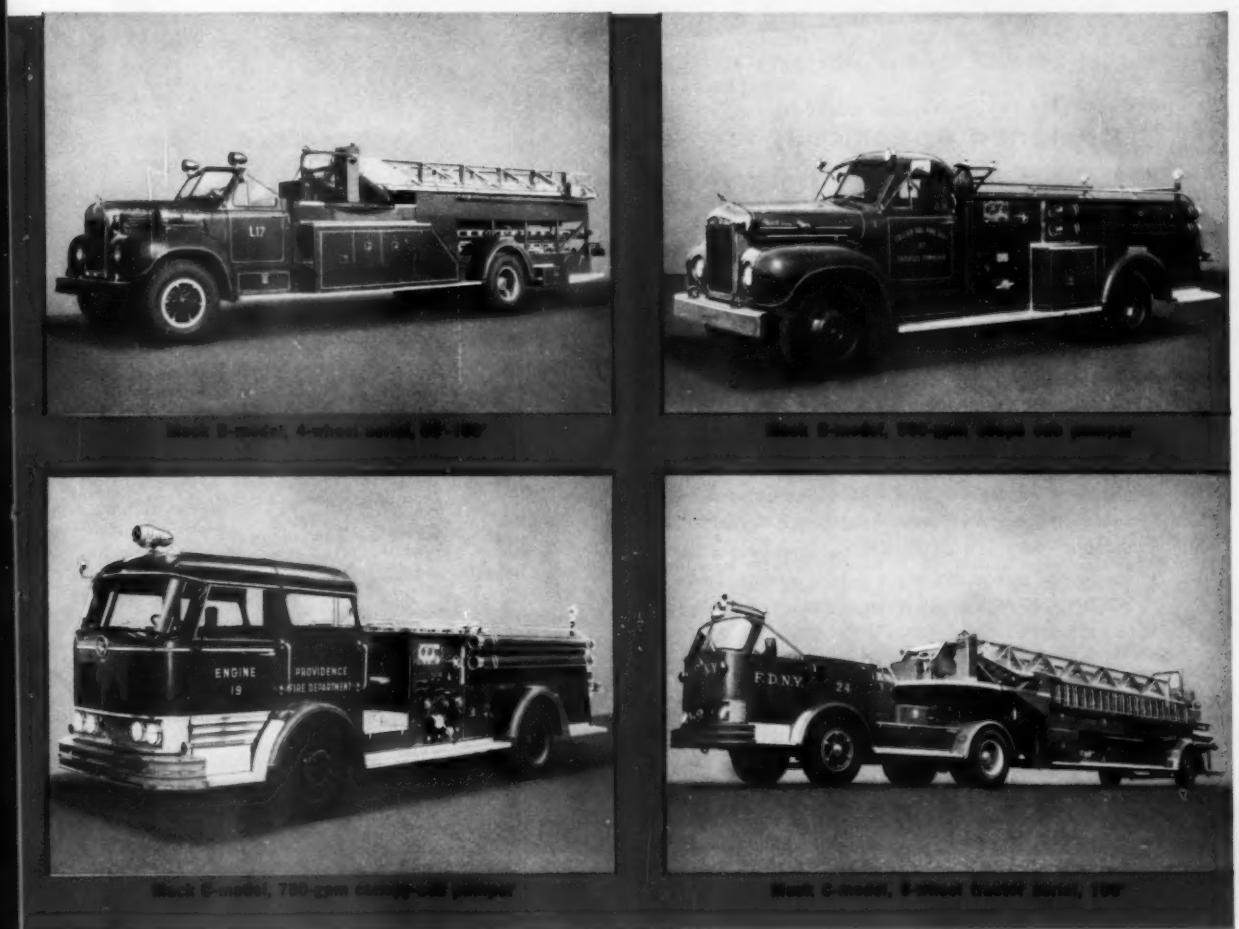
FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM • SQUAD AND HOSE WAGONS • AERIALS 65′ to 144′ • COMBINATION LADDER TRUCKS



2 NEW HOLOPHANE REFRACTORS

- **For Daytime Safety in Nighttime Traffic**
- **High-Level Efficiency**
- **Low-Cost Maintenance**

1 REFRACTOR NO. 4061 I.E.S. TYPE II

2 REFRACTOR NO. 4064 I.E.S. TYPE III

WHEELER-FULLERTON LUMINAIRE

Designed Specifically for New WHEELER-FULLERTON 400 Watt Mercury Horizontal Luminaires...

Combining long experience in street illumination, with time-proved principles of prismatic light control, HOLOPHANE engineers have developed two new Refractors for WHEELER-FULLERTON Luminaires. Their "custom-tailored" prismatic designs supplemented by other optical components give these fine luminaires the following advantages: • more light on the roadway • uniform distribution • great visibility distance • maximum illumination per taxpayer's dollar... Before you act on any street lighting project—write for HOLOPHANE engineering recommendations; no obligation.

Special "ENDURAL"® Glass Advances the Quality of HOLOPHANE Refractors...

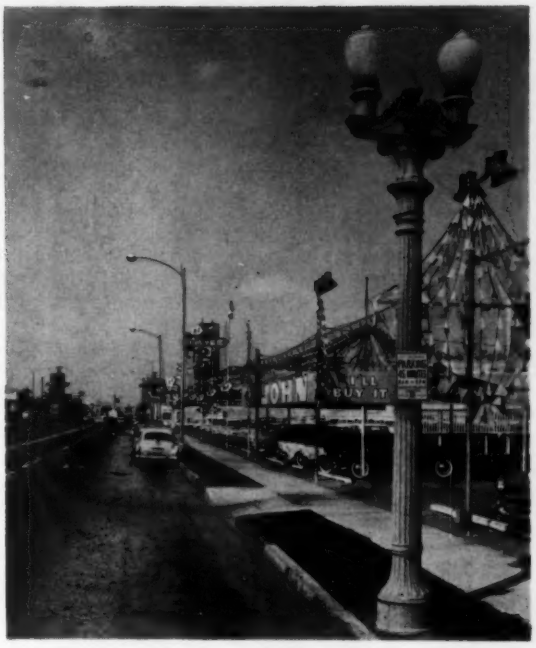
One of the major factors in the excellent performance of Holophane Refractors is their unique crystal clear, Borosilicate Glass, known as "ENDURAL." This glass has been specially designed to meet the energy distribution characteristics of large Mercury lamps.

HOLOPHANE COMPANY, Inc. Lighting Authorities Since 1898

STREET LIGHTING DEPT., NEWARK, OHIO

THE HOLOPHANE CO., LTD., 418 KIPLING AVE. SO., TORONTO 18, ONT.

One of the new units in a residential area.



New and old together in a location made difficult by competing floodlights.

Culver City's Comprehensive Lighting Program

Of several types of street lighting improvement programs in effect here, the most recent covers Washington Boulevard from city limits to city limits, approximately 5½ miles, making the total job length 11 miles. In 1950 and again in 1957 attempts to replace the old antiquated and depreciated street lighting equipment via assessment act (1911 Act proceedings) failed for various reasons, including prevailing economic conditions and the relative high cost of the procedure. Another reason was the lack of publicity.

As something had to be done soon from the standpoint of Public Safety and Welfare and the gross inefficiency of the existing equipment, our City Council authorized the following program which was recommended by Chief Administrative Officer Deane Seeger.

Where the property owner (or tenant) will pay for the standard, ballast, luminaire and lamp ($300), the city will furnish all other expenses incurred in the process such as labor, equipment, wire (foundations if necessary). In this respect we are particularly fortunate that existing locations are compatible and the underground conduits and cables are in most cases in good condition, even though they are more than 30 years old. Replacing the equipment above ground and a few other incidentals is all that is necessary to effect a modern lighting system, and we have been able to offer this program to the property owner for approximately $3 per foot in lieu of the $6.90 per foot via assessment act proceedings.

The Program

We have made 75 installations to date and expect to continue until all 500 of the antiquated poles are replaced. Our replacements consist of Pacific Union Metal and Weldrite galvanized standards with 32'6" mounting heights, 8' arms and transformer bases. Luminaires are horizontal Type III Joslyn and General Electric with Sylvania S.H.1 400-watt mercury vapor lamps.

Where the job is finished on both sides of the street, footcandle values average from 2½ to 3½. The spacing of units ranges from 90' to 110' opposite and staggered in the various areas and the Boulevard varies from 70' to 90' in width.

We also have other programs regarding residential and boulevard replacements that have had a decided effect in the appearance and efficiency of our lighting systems over a period of the past 12 years. Our policy is never to replace in kind. Monies recovered from traffic accidents, relocation requests, etc., usually will pay for modern standards and luminaires, and the investment of the rest is more than compensated for by saving in maintenance costs thereafter.

Approximately 70 of these installations have been made along Washington Boulevard in conjunction with traffic signal projects over a period of the last ten years. Recently, construction of a State Freeway through our city has enabled us to install some 30 more mercury vapor units and 25 modern residential units which consist of 26' mounting height steel galvanized standards with Line Material (suburban) Type II and V luminaires.

Agreements with subdividers in new tract developments have enabled us to install around 100 modern residential units and 20 mercury vapor units at their expense and 1911 Act Assessment Districts have accounted for another 150 residential and mercury vapor units in the last ten years.

We leave "no stone unturned" in digging for opportunities to light our city and we can now "brag" that only 5% of our city is without adequate street lighting.

RALPH B. WESTON
City Electrician
Department of Public Works
Culver City, Calif.

OUTDOOR LIGHTING

Public Lighting in the Netherlands

The purpose of public lighting must always be to increase traffic safety on the public highway. In the very choice of the type of lamp to be used, thought must be given to the relative importance of three essential factors: utility, cost, and aesthetic considerations.

In the Netherlands, sodium lamps are recommended for the main roads entering towns, for bypasses, or even for roads passing straight through towns, since the conspicuous orange light will indicate to the motorist from some distance away the main road to be followed and he will not have to seek his way at every cross-road he comes to. And in fact, in Amsterdam the roads entering and leaving the city are lit in this way, even through the residential and shopping areas, over a total distance of 25 miles. However, if public opposition to this economic but monochromatic lighting is too great, this recommendation will have to be ignored and extra-high intensity mercury lamps can be used for a town's main roads.

Also, very often warm, white fluorescent tube lighting is still used. Admittedly this type of lighting is also economical but the length and the relatively small power input of each tube mean that the large luminaires can easily disfigure the street or that the required level of illumination cannot be obtained.

Incandescents

Finally there is the incandescent lamp, the warm color of which is still the most satisfactory, especially when one allows for the low level of illumination which is attainable with artificial lighting in comparison with daylight. Admittedly the luminous efficiency of the incandescent lamp is not very high compared with the discharge lamp, but the absence of control-gear can make the initial purchase of incandescent lighting cheaper.

Once the type of lamp has been chosen, a decision must be made on the choice of luminaire. On open roads outside the towns the lamp needs only to light the road surface, and any light which falls beyond the road surface is wasted. All that is required here, therefore, is a cut-off fitting to prevent the light from the lamp striking the road-user directly in the eye. A street with houses, on the other hand, would have a dead appearance if the road surface alone were illuminated by shielded lamps. In built-up areas the facades of the houses must also be illuminated to serve as a background against which everything on the road is silhouetted. In Amsterdam we often use for this purpose luminaires with a diffuse transmitting apron, which at the same time enliven the appearance of the street.

It is emphasized in the Dutch "Recommendations for Public Lighting" that what is most important is what the road-user sees, that is to say the luminance of the road surface, and that this does not only depend on the luminous flux per square foot, but equally on the reflective qualities of the road surface, on the angle from which the light strikes it and on the angle from which this reflection is perceived. With the continual increase in the amount of traffic the demands for good street lighting also increases, the ideal being that the lighting would allow the Government rigorously to forbid the use of car headlights on lighted roads.

The type of road and the dimensions of the road's profile will determine our choice whether the lamps will be erected in one row or in two rows. If one row is chosen, the lamps must be hung along the middle of the street.

DR. M. RUTGERS VAN DER LOEFF
Chief Engineer
Municipal Gas and Electricity Dept.
Amsterdam, Netherlands

This article is taken from the *IULA Quarterly*, Vol. X, No. 4, December 1958; 5 Paleisstraat, The Hague, Netherlands.

Relighted Salinas

Salinas, Calif. has relighted downtown for 2,400 feet along Main Street. It was financed by creation of an assessment district. The petitions calling for the improvement were signed by 80% of the property owners in the district.

The 37,200-lumen General Electric fluorescent luminaires utilizing 6-foot power groove lamps are mounted on 30-foot octaflute davit-type standards made by the Union Metal Mfg. Co. The luminaires are tilted upward 15 degrees.

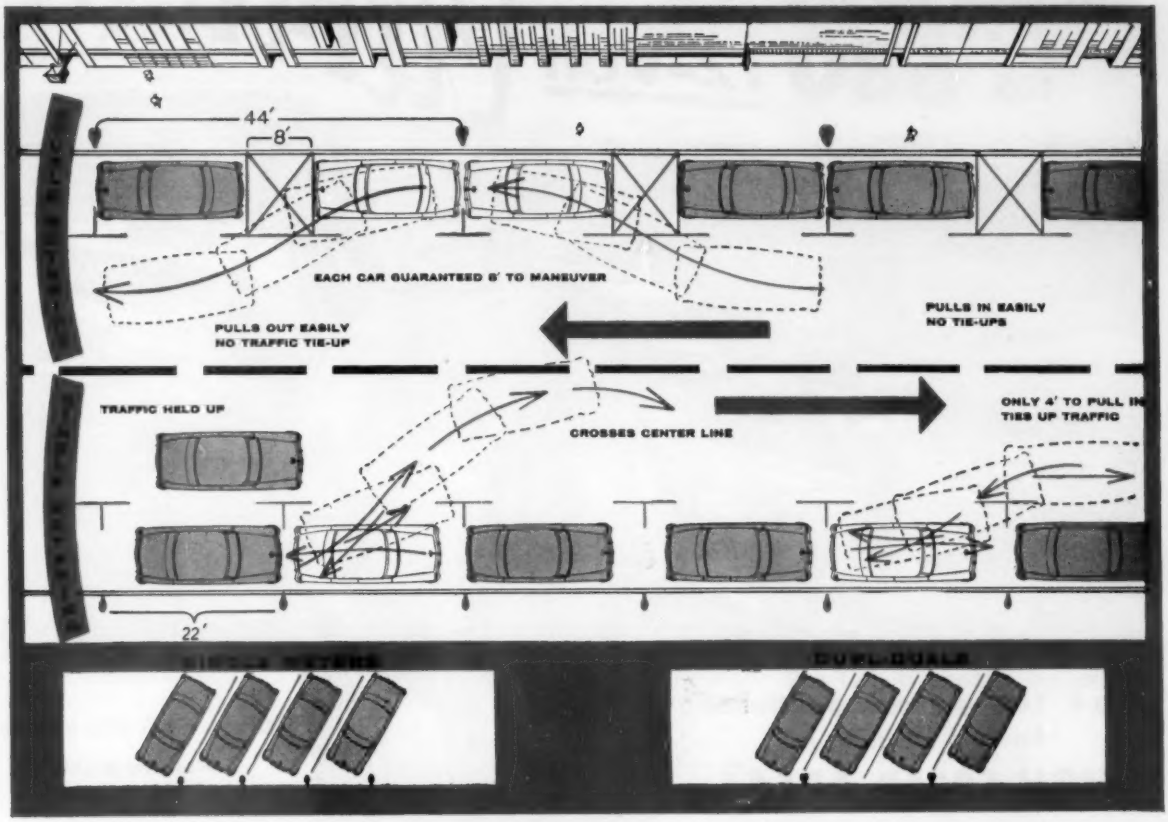
Poles are staggered at 75-foot intervals, providing an average maintained illumination level of 1.8 footcandles.

According to City Engineer Harris B. Munger, Jr., the new lighting provides three times more light than the old incandescent system and uses the same amount of electrical energy.

Oil Painting of Connecticut Turnpike

This oil painting of the Connecticut Turnpike was presented to Abraham Ribicoff, Governor of Connecticut, by Harold A. Olson (left) regional vice-president of the General Electric Co., who lauded the governor and the state for a "progressive, far-sighted traffic safety program which includes adequate highway lighting for safer night driving."

HOW TO MAKE THE MOST OF EXISTING PARKING SPACE



Only Dubl-Duals get the most out of existing parking space and reduce metering costs 27% in the bargain

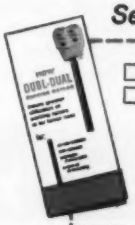
The drawing above shows clearly how Dubl-Dual Parking Meters insure eight full feet between cars while single meters often reduce space to only four feet. Note too how traffic flows more easily and safely when cars are assured adequate room to maneuver into and out of the parking spaces.

But greater utilization of parking space is only part of the Dubl-Dual story. Since Dubl-Duals are two separate meter mechanisms in a single case, initial cost is lower. And installation costs are reduced because only half as many meter stand installations are required. Dubl-Duals also reduce collection and inspection time . . . every other meter "stop" is eliminated.

There are lots of sound, proven reasons why your community should investigate the economy and efficiency of Dubl-Dual metering. Send the coupon for complete details in the new, booklet on Dubl-Dual Parking Meters. Dual Parking Meter Co., Subsidiary of Rockwell Manufacturing Co., Pittsburgh 8, Pa.

DUAL PARKING METERS
another fine product by
ROCKWELL

Send for this free booklet today



☐ Please send complete information on Dubl-Duals.
☐ Please have your representative call.

Name _____ Title _____
City _____
State _____

Now! An Official Size Portable Warning Light . . .

No. 680 12-Volt

DIETZ Visi-flash

Big 8" Lens gives long distance hazard-warning in

HIGH-SPEED AREAS

Use the 680 Visi-flash to give drivers on high speed highways the lead-time needed to slow down for dangerous hazards ahead. The Traffic Signal size 8" lens and the highly polished parabolic reflector are precisely combined to uniformly beam hazard warnings over the longer distances and areas necessary to slow high speed traffic.

Powered by two 6 volt batteries, the fully transistorized 680 has no tubes to fracture, jar loose, or burn out. The entire unit is proof against weather, shock, rough treatment. In the standard circuit, batteries deliver dependable performance for *650 hours!*

Dietz 680 Visi-flash

Warning Light of Many Uses

- High-speed hazard warnings
- Semi-permanent barricades
- School crossings
- Police warnings
- Abutment markers
- Overpass markers
- River bridge markers
- Rural traffic islands

Ask your Certified Dietz Distributer in the U.S.A. or Canada for complete information. Or write for full line catalog: R. E. Dietz Co., 100 Leavenworth Avenue, Syracuse 1, New York.

New 685 Visi-flash EMERGENCY LIGHT

The 685 Visi-flash is especially designed for all kinds of warning lighting in emergencies, e.g., fires, roadblocks, work areas, maintenance or temporary hazardous road conditions in bad weather. Featuring a big 8" lens, it is powered by two 9 volt hotshot batteries — can be mounted on tripod up to 8 ft. high (available on order).

Go DIETZ and you go Safely

Fire Photography

Fire photographs have proved their worth in saving lives, in training, and in depicting unsafe and ineffective fire fighting methods. There are four general classifications of fire work to which photography can apply—(1) Training, (2) Fire Prevention, (3) Fire Fighting, and (4) Arson. To cover this range of picture-taking requires a camera with sufficient versatility to meet the most unusual situations. Such a camera is the Pacemaker Graphic 45, made by Graphlex, Inc., Rochester 3, N. Y. It is widely used by police departments as well as fire photographers.

A number of fire departments train a staff of men already proficient in the techniques of fire fighting to use the camera. It is important that the photographer be acquainted with the purposes and procedures of fire work, so that he will know which shots are important. It is far easier to train a fireman in the use of a camera than to train a photographer to recognize valuable picture-taking opportunities. After only a few hours' training a fireman will be able to take pictures adequate for the department's use.

Training

In fire fighting, education begins with the new trainee and continues throughout his career. Photographs are often the only means available for graphic instruction for fire departments purchase expensive tools and equipment of various designs from many manufacturers and it is impossible to have a sample of each available for demonstration. Firemen also encounter many different types of fire hydrants and they must be familiar with all of them.

Pictures taken at fire scenes show trainees the actual methods used. These photos may illustrate correct deployment of equipment; the proper method of holding a hose; a dangerous stream of water aimed blindly; improperly placed ladders; unnecessary grouping of firemen; and fire equipment placed too near a weak wall. Faulty fire techniques that might not be noticed at the fire can be criticized later by reviewing photographs taken at the time.

Interchangeable lenses—wide angle, telephoto or normal lenses—are sometimes required for maximum fire coverage. Wide angle lenses are especially helpful for indoor shots where space is often restricted. Telephoto lenses are helpful for close-ups of details in dangerous or inaccessible areas. Telephoto lenses also improve perspective of buildings, ladders, etc. For average subjects and distances the normal lenses are used.

For night fire photography or shots inside a dark building, a built-in Rangelite projects two light beams upon the subjects. The subjects are in focus when the beams converge.

Motion Pictures

Firemen's training can be furthered by means of a 16mm sound projector. Motion pictures help standardize trainee programs for new firemen and also save time and money through visual demonstration of equipment in use in the department.

Fire films can frequently be obtained from local television stations for examination of correct or incorrect methods used at a recent fire. Training films can be obtained from the National Board of Fire Underwriters, the National Fire Protection Association, and the various insurance organizations which are interested in promoting fire prevention.

Photography plays an important part in the prevention of fires through public education and investigation of fire law violations.

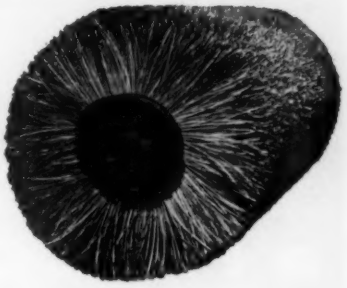
When used in court as evidence of fire hazards, photographs encourage court action to enforce fire prevention ordinances. When it is necessary to condemn dilapidated buildings or force occupants of dwellings under penalty of law to remove trash, rubbish, rags and other incendiary material from their premises, photographs save much time and expense in getting prompt response from the court.

A camera fitted with an accessory Polaroid Back for "pictures in a minute" can induce an owner to correct the fire hazard before a court order is obtained. The fire inspector can take the necessary pictures, show them to the person concerned, point out exactly what should be done and expect reasonably prompt action, all in one visit to the premises. Polaroid pictures also are a means of saving hours of developing time.

Arson

In cases of suspected arson, the police and fire departments will work together. In most cases of arson, it is quite difficult to obtain a conviction. Incriminating evidence is often de-

FIBRES



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New York—Minneapolis—Los Angeles

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a PARCOA

Automatic Parking System . . . will easily solve your parking problem

You have full control of parking, day and night with PARCOA—

- You do it at low cost
- You have the finest operating equipment

Efficient performance is built in by parking specialists who have provided—

- for smooth, safe, fast parking—no confusion
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PARCOA is the pioneer in automatic parking systems and the recognized leader today. PARCOA engineers can install a parking system fitted to your specific needs with the overall installation based on the many successfully operating PARCOA automatic parking systems. Find out how PARCOA parking gates can solve your problems. Write for Bulletin No. 580.

Choice territories available. Distributor inquiries invited.

A few of the Municipalities that have solved their parking problems with Parcoa.

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City of Ithaca, New York
City of Oakland, California
City of Petersburg, Virginia
City of Port Jervis, New York
City of San Jose, California
City of Sioux Falls, S. D.
City of Miami, Florida
City of South Orange, N. J.
City of Superior, Wisconsin
City of Vincennes, Indiana
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FLEXIBLE OPERATION

These control types give you a choice of individual or combination of controls to fit your needs.

CODED CARD-KEY
for cars parking on monthly or reserved basis.

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for controlled transient parking

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for merchants restricted free parking service.

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for automatic self service in merchant participation parking.

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DISTRICT FIELD OFFICES: NEW YORK: 420 Lexington Ave., New York 17, N. Y. BOSTON: 25 Southwest Park, Westwood (Boston Suburb), Mass. CLEVELAND: 4209 W. 150th St., Cleveland 11, Ohio. SAN FRANCISCO: 468 Ninth Street, San Francisco 3, Calif. DALLAS: 1706 Hinton, Dallas 19, Texas.

SALES AND SERVICE OFFICES IN OTHER MAJOR CITIES LISTED UNDER BOWSER, INC.

stroyed in the fire. Good photographs, however, are valuable to the jury in arriving at a verdict.

Photographs in cases of suspected arson should be made of each side of the building, showing the overall damage. Any evidence of "runners," paths of paper or inflammable materials used to carry the fire from one room to another, should be photographed.

Photography of Invisible Evidence

Often arsonists can be convicted by invisible evidence found at the scene. Ultraviolet, infra-red and Kodalith techniques are three methods commonly used. Kodalith film has extremely high contrast and intensifies small differences in color, light and reflection which are present but indistinguishable to the naked eye.

Ultraviolet and high contrast photos frequently reveal stains on clothing, laundry marks, alteration of forged checks and documents, fluorescent powder marks on clothing and hands. Infra-red photographs will reveal pencil marks on charred paper, erasures and forgeries of documents, subdermal bruises on victim or suspect, and stains on clothing. Photographic techniques such as these may also be valuable to investigators in helping to identify fire victims.

The Woman's Touch In City Planning

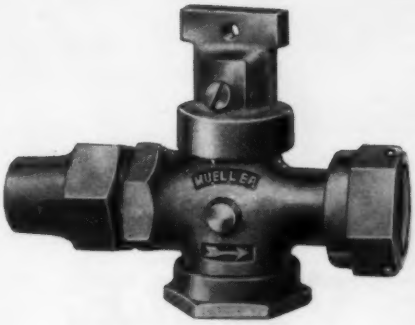
Six months ago, Mrs. Anita Robertson, 37, and mother of two children, was appointed South San Francisco's first woman chairman of the Planning Board. She entered on her duties with the energy and zest of a good housewife and in no time at all had the town's municipal buildings freshened up with new coats of paint, the parks' worn grass and shrubs replaced, the streets looking spic and span, and old roads rejuvenated with new palm tree plantings. From there she went on to spur an active campaign for recruiting new industries for the town.

Typical of Mrs. Robertson's emphasis on attractiveness is her plan to fringe the approaches to a new airport with plantings of palm trees and to landscape the areas in front and rear of new plant buildings. "I do not believe it makes much difference whether you work in a home kitchen or a factory," she declared. "Attractive surroundings just naturally make for better production. Our aim is to make the City of South San Francisco the most attractive industrial community in America."

For easy-to-make, leak-proof settings...

3 NEW MUELLER® meter stops!

H-14300 Inverted Key Meter Stop
"Service to meter" stop
Connects directly between service line and meter
Inlet connection for ¾" copper service pipe
Swivel nut outlet for ⅝" x ¾" or ¾" meter
Round way, inverted key curb stop design
Combined Cap and Tee Head with Check



H-14313 Inverted Key Meter Stop
"Meter to house" stop
Connects directly between meter and house piping
Swivel nut inlet, Inside I.P. outlet

Size of Stop	¾"	1"
Size Meter Spud thread	⅝" x ¾" or ¾"	1"
Size Stop outlet	¾"	1"

Round way, inverted key construction
Phosphor bronze spring in base for easy turning
Base cap sealed with "O" ring
Combined Cap and Lever Handle with Check

H-14325 Angle Meter Stop
"Service to meter" angle stop
Connects directly between vertical service line and meter
Provides elbow to set meter horizontally at any convenient height
Angle inlet connection for ¾" copper service pipe
Swivel nut outlet for ⅝" x ¾" or ¾" meter
Straight way, ground key construction
Solid Flat Head with Lock Wing

These special application meter stops are typical of the attention to detail in research, design and engineering that becomes a part of every Mueller product manufactured for the water industry. Write for complete information on the full line of Mueller meter stops and other meter setting equipment.

MUELLER CO. Since 1857 SERVING the Water and Gas Industries QUALITY

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Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

Daytime scene of heavily-traveled Chicago street with Revere Endoval Mercury Luminaires mounted at 10° tilt, 29 feet above grade, with 83 foot opposite spacing.

REVERE PLANNED STREET LIGHTING

Revere Endoval luminaires use 11,000 or 21,000 lumen mercury lamps to provide high-level illumination.

Wide, busy streets call for high-level illumination. Revere Endoval Mercury Luminaires were especially designed for such applications, to provide high-intensity lighting economically and efficiently. In the installation shown, the average illumination on the black-top pavement is 3 foot candles.

The reversible slip-fitter on the Endoval permits mounting horizontally, or at a 10° tilt, for a variety of street lighting applications. Write for Revere Street Lighting Catalog for full information on fixtures for heavy, moderate, or lightly-traveled streets.

Other luminaires in Revere's complete line

For moderately-traveled streets—Revere Star-Lux Luminaire uses up to 10,000 lumen incandescent lamps, or 250 to 400-watt mercury lamps to meet varied needs.

For residential streets—Revere Urban-Lite makes efficient use of 100, 175, or 250-watt mercury lamps for uniform light in areas where lower intensity light is adequate.

Revere ELECTRIC MFG. CO.

OUTDOOR LIGHTING

Revere Electric Mfg. Co. • 7420 Lehigh Ave. • Chicago 31, Ill.

Available in Canada thru Curtis Lighting, Ltd., Leaside, Toronto, Ontario

L. A. Tanner hands over the purchase check to Mayor Jack Williams, with City Manager Ray W. Wilson (left) and City Councilman John B. Haldiman.

Municipal Transit Service Ends

. . . even though in 1955 and 1957 and again in 1958, the City of Phoenix won top award, a silver plaque, in the American Transit Association Safety Award Competition among transit companies serving populations of 500,000 to 1,000,000

By **ALBERT R. PIERCE**
Administrative Assistant
to the
Public Works Director
Phoenix, Ariz.

Thirty-three years of municipal transit service in Phoenix, Ariz., ended when Phoenix voters on March 24, 1950 authorized the City Council to sell the money-losing bus system to a private operator for $400,000. *This is just the reverse of the nation-wide trend of the past few years, for during that time cities have taken over the operation of defunct transit systems.*

Transfer of the system to L. A. Tanner, owner of the Sun Valley Bus Lines in Phoenix, took effect on April 1. The bus line was sold by the city to eliminate a large annual deficit resulting from its operation and to integrate the system with Valley Transit Lines, a subsidiary of Sun Valley System.

Phoenix and the metropolitan area are expected to gain improved transit service as a result of the merger. A tentative order has been placed for 24 new air-conditioned buses to be in service by 1965.

Previous to the election, Tanner submitted the minimum figure set by the city of $400,000 for the city's 53 buses, fare boxes, and spare parts. Since Tanner was the only operator who could integrate the two systems as required by the City Council, he was the only bidder at a public auction held by the Council on March 10. He posted a $25,000 cashier's check as a bid bond pending the outcome of the election. All the equipment transferred to Tanner was in excellent condition;

Seven 45-passenger GMC air ride coaches, 1957 models—part of the modern diesel-powered transit coach fleet turned over to Valley Transit Co., April 1, 1959.

the average age of the 53 GMC diesel-powered buses was set at 8.2 years. They included thirty-five 45-passenger and eighteen 36-passenger units.

The city and Tanner worked out an agreement covering all phases of the consolidation. It included a provision that Valley Transit would employ the city's bus drivers until such time as they can be returned to the city service in comparable jobs. In line with this provision, the operators were given a year's leave of absence so that they would not lose their retirement benefits. The system had 81 employees before the sale and of them, 67 were bus operators. Of this total, 57 operators went over to Valley Transit and 10 were given other city jobs prior to the transfer. The 14 administrative and clerical workers were transferred to other city departments.

In the past the city has made various attempts to purchase Valley Transit and merge it with the city system but on each occasion Tanner has refused to sell. The annual deficit from the city system has become more acute during the past eight years. Although Valley lines in the outlying areas have become increasingly profitable due to the increase in population and higher fares in these areas, the opposite has been true of the city lines.

The operating loss of the city system is attributed to a sharp decline in passengers — in fact, bus patronage has dropped from nearly 22 million passengers in 1946 to less than 5 million for 1958. The system has not been able to operate on even a self-supporting basis because the area served was circumscribed and partly duplicated by Valley Lines, which is certificated by the Arizona Corporation Commission. As the city expanded, its transportation system was at a disadvantage in that Valley was able to extend its lines farther than the city system.

For the fiscal year ending June 30, 1958, the city system lost $146,346 and losses in the current fiscal year were expected to be around $155,000. Depreciation is not included in these figures. If the city had continued to operate a bus system, depreciation would have to be included in order to provide for replacement of buses as they wore out. This could cost an average of $100,000 a year in addition to the out-of-pocket operating loss.

An attempt to sell the bus lines in 1955 was defeated. However, in that election, city bus drivers spearheaded a drive against the sale. At the time of the recent successful election, the same drivers voted not to oppose the sale.

Appropriate ceremonies were held to mark the official transfer of the city system to Tanner on April 1, 1959. The sale of the system and its proposed merger with Valley Transit Lines is best described in a comment made by a leading Phoenix businessman who said, "With a unified bus system, now the public should get some good bus service."

Traffic Deaths

For the first five months of 1959, New York City's traffic figures are up 10 per cent, 288 killed and 20,910 injured, according to Police Commissioner Stephen P. Kennedy. At this pace, traffic deaths for the year will exceed 700 — more than double the number of persons killed in criminal homicides.

Protect play areas with **REALOCK FENCE**

The giant steelman symbolizes the quality that is built into every section of Realock Fence. Realock is a permanent, low-cost way to enclose school yards, tennis courts, athletic fields, parking areas and other spaces where safety and limited access are desirable.

Realock's symmetrical design blends with the background. And Realock will *not* become "run down" looking because the steel fabric is galvanized *after* weaving to make it weather and corrosion resistant.

Realock Fence is engineered to take punishment. The steel has high strength, yet it is sufficiently resilient to prevent snapping or sagging. Sturdy posts set in concrete provide years of dependable service. Realock is also available in aluminum.

Realock's professional crews can erect your fence, or your own personnel can easily install it. For full details—and a free estimate—call the nearby CF&I sales office.

THE COLORADO FUEL AND IRON CORPORATION—Denver and Oakland
WICKWIRE SPENCER STEEL DIVISION—Buffalo, New York

CF&I STEEL

REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
BRANCHES IN ALL KEY CITIES

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Sherman's 1959 Panther Power Digger

with All New Loader Attachment

The improved Panther blends feature knowledge from over 17,000 installations with the imagination and skill of Sherman's research and engineering.

Go Ahead! Compare! Sherman is the Standard of Comparison!

- ★ Exclusive Sherman Hydra-Loop provides hydraulic power at both ends of tractor simultaneously.
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- ★ Dirty Filter Indicator guarantees maximum all-around performance.
- ★ Easy oil filter accessibility saves time, eliminates work, simplifies maintenance.
- ★ 2800 Sherman dealers throughout U. S. and Canada assure you of prompt parts and service for dependable and economical operation.

AND . . . for the first time, the all new Sherman Loader is available as companion equipment. With 2000 lbs. lift, 4000 lbs. breakaway capacities. (2500 lbs./5000 lbs. for Ford Industrial or Fordson Power Major tractors.) The improved Panther and new Loader give you an excavating-materials handling unit that outperforms, outmaneuvers any comparable equipment on the market today!

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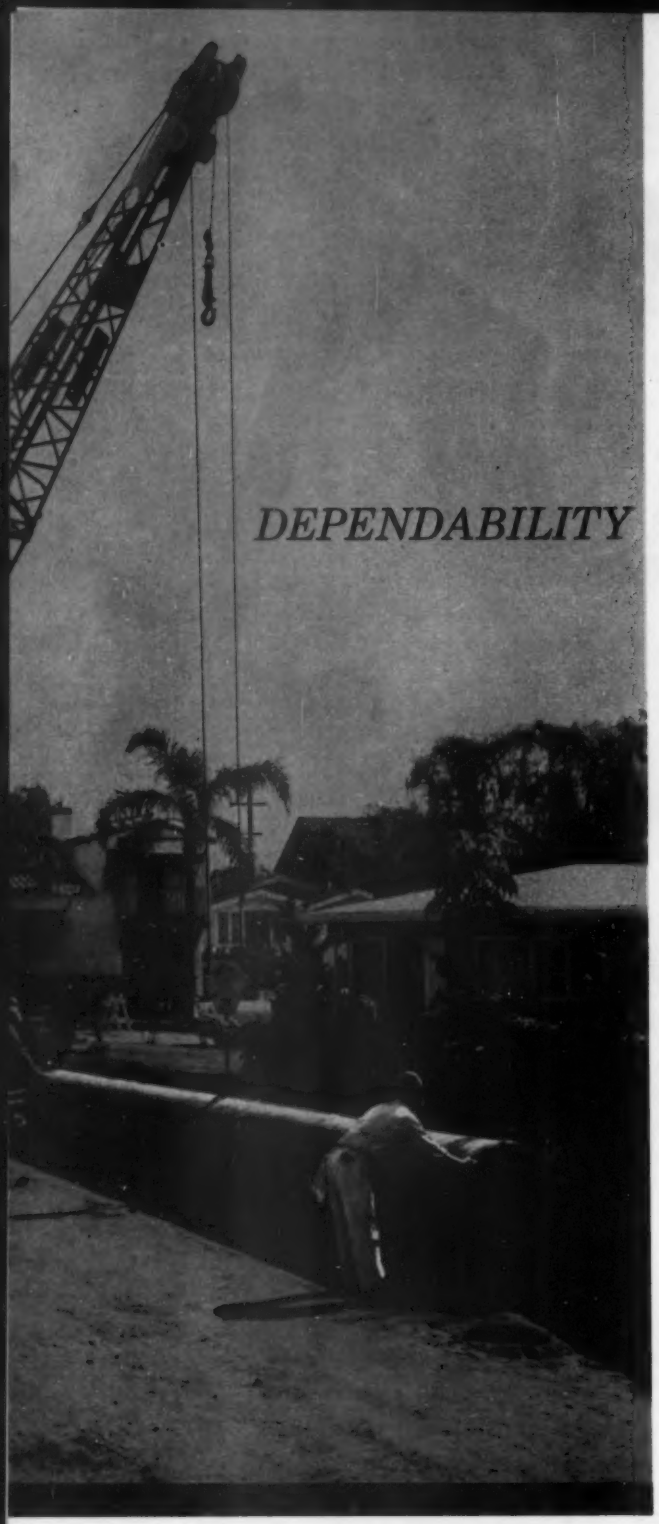


AMERICAN CONCRETE CYLINDER PIPE *provides...*

DEPENDABILITY with ECONOMY

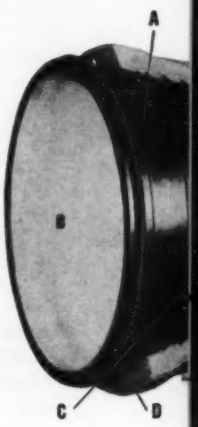
This pretensioned concrete cylinder pipe embodies all of the qualities and characteristics sought by water works engineers for permanent water supply and transmission lines—strength, sustained high carrying capacity; trouble free service and unusually long life. Its competitive initial cost has made it possible for hundreds of water works agencies throughout the West to obtain these desired qualities for pipelines with pressures generally ranging from 100 psi upward, and requiring diameters of 10" through 60" (or in many cases larger, where specific project conditions permit). When you select pressure pipe for your permanent water "growth lines," be sure to investigate American Concrete Cylinder Pipe, a superior product with an outstanding record of acceptance.

A. The steel cylinder provides a positive water seal or membrane as well as part of the total steel area required for internal stresses.

B. The smooth centrifugally applied mortar lining of a nominal ¾" thickness provides positive internal protection, sustained hydraulic capacity, and, **imparts rigidity and strength through "arching effect."**

C. Steel reinforcement rods, which together with the steel cylinder provide the total cross-sectional steel area required for the operating pressure specified, are wound under controlled tension and accurate spacing around the concrete lined cylinder, placing it under moderate compression.

D. In conjunction with the steel rod reinforcement along the entire surface of the cylinder, the application of a dense concrete coating produces, in effect, a **reinforced jacket** which affords additional structural strength as well as positive exterior protection.



The 32-foot long pipe sections are easily installed with standard equipment using a single cable sling. In addition to providing a watertight seal, the rubber gasketed joint facilitates ease and economy of installation, and eliminates the need for caulking or field welding.

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P.O. Box 12127 — Alpine 2-7566

CONCRETE PIPE FOR MAIN WATER SUPPLY LINES. STORM AND SANITARY SEWERS. SUBAQUEOUS LINES

130-Year Old Arch

(Continued from page 93)

mitted filling the void with a 1:8 cement sand grout after the entire arch was in place.

Excavated material removed from below the floor line of the downstream 86-foot section indicated an unnatural deposit of sand and leaf mold, the type of material one could expect to be removed from city streets over a long period of years. This material, as we found it in a wet state, had a consistency similar to a heavy jelly; yet when it was exposed to the air and allowed to dry, it became quite stable, so was used as backfill around some of the completed sewer.

Poor material averaged about 6 feet deep for a distance of 130 feet in the ditch also. The contractor replaced this with very coarse material for the bottom 5 feet of the excavation and used bank run sand to bring it to grade.

The entire runoff from the drainage area had to pass through the project, and at one time during construction the flow was 6 feet deep in the new sewer. The contractor, wishing to avoid all possible damage from high water, designed his forms to function without midspan supports.

The City of Dayton, Division of Engineering, handled all engineering work on the sewer and arch reinforcement. R. L. Langston Company, Inc., of Dayton, was the construction contractor and Armco Drainage and Metal Products, Inc., of Middletown, Ohio, served as subcontractor on the metal arch installation.

Community Insect Control Demonstration Shown in Film

Municipalities can obtain a 16mm movie in color, with a sound track that will show how to organize and carry out an insect-control program. The film runs for 24 minutes and is suitable for television. It documents actual demonstration programs in four different states.

It can be borrowed without charge for short-term use from the Communicable Disease Center, Public Health Service, Department of Health, Education, and Welfare, Post Office Box 185, Chamblee, Ga.

It can be purchased from United World Films, Incorporated, 1445 Park Avenue, New York 29, N. Y.

Tri-County Safety Patrol, Sheriff's Department, Wood County, Wisconsin.

For nearly five decades Evinrude outboard motors have been top choice for powering every type of small craft in municipal service . . . waterfront patrol—rescue squads—emergency fire fighting—reservoir chlorination—weed eradication—inspection and ferry service. Complete range of models. 3 to 50 horsepower. See your local Evinrude dealer—his name is listed under "Outboard Motors" in the yellow pages. Evinrude Motors, 4147 N. 27th St., Milwaukee 16, Wisconsin. *A Division of Outboard Marine Corporation. In Canada; Mfd. by Evinrude Motors, Peterborough.*

Champion Fire Apparatus

W. S. DARLEY & CO.

CHICAGO 12

Put A LOAD SWEEPER On Your MICHIGAN Tractor Shovel

For full details consult your Michigan tractor shovel distributor or •••••

LOAD SWEEPER DIV.
CLARK-WILCOX CO
118 Western Ave.
Boston 34, Mass.

Ice-control trucks like this one were kept busy last winter fighting Rochester's 140 inches of snow.

Rochester, N. Y. experimentally tries no-salt snow removal and finds that . . .

Salt Is Still the Best

By **F. DOW HAMBLIN**
Commissioner
of Public Works
Rochester, N. Y.

Rochester's saltless experiment, conducted last spring after numerous postponements, reestablished our conviction that:

1. There is no known substitute for salt to maintain traffic under storm conditions.

2. Plowing cannot be considered as a substitute for the use of salt.

3. Salt cannot be used exclusively without plowing. On the contrary, salting and plowing complement each other.

Over the past 74 years, snowfall in Rochester averaged 74 inches per season. Three of the last four seasons were particularly severe with over 120 inches each year.

The city administration has long been convinced of the economic wisdom of timely ice and snow control and believes that any reasonable expenditures are warranted in order to insure, so far as possible, uninterrupted industrial and business conditions. We are also convinced that, although salt admittedly does some damage to pavements and motor vehicles, the cost in dollars of this damage is more than offset by:

1. the reduction of traffic accidents (including fatalities and injuries),

2. the reduction of economic losses due to industrial and commercial closings, and

3. the reduction of school closings.

Proven Control Measures

Ice and snow control measures consist, fundamentally, of early and frequent plowings of all streets plus the use of rock salt to maintain the main arteries, bus routes and downtown pavements free of ice and snow. The use of salt for this purpose dates back many years but in 1953 it became a major factor in the program. It is of particular interest to note that, since the extensive use of salt was inaugurated, we have maintained traffic with much less interruption due to snow storms.

The table on page 155 shows the extent of the use of salt in recent years.

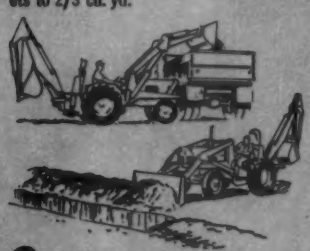
Our heavy use of salt, while producing optimum traffic conditions, has resulted in heavy expenditures. Although the majority of people approve of the system, there has always been a vocal minority that insists plowing alone should do the job, that salting is an unnecessary and unwarranted expense, and that salt has a deleterious effect on cars. We add an inhibitor to the salt to reduce the corrosive effect upon automobiles and the administration has constantly studied the amount of salt necessary to overcome the various conditions of individual storms in order to avoid excessive use. The gradual reduction in tons of salt per inch of snow reflects a planned attempt to reduce salt

It's all in the picture(s)...

6 trench-work costs you'll slash with CASE *Utility* BACKHOE-LOADER

Costs Little More Than a Man's Wages. Case 210B Backhoe-Loader with average set of attachments, plus gasoline, oil and maintenance, costs only a little more than the annual wages of one man. On lease or extended terms the cost runs considerably less.

2 6 LOADER digs and loads dirt, aggregates, snow. Carries concrete, sand, stone. Backfills, grades. Choice of 3 buckets to 2/3 cu. yd.



3 CRANE BOOM handles 875#... pipe tile, valves, hydrants, small equipment.

5 DOZER BLADE backfills, spreads, grades, clears snow.

4 PALLET FORK moves shoring and forming lumber, pipe, 1000# of brick and block; small equipment.

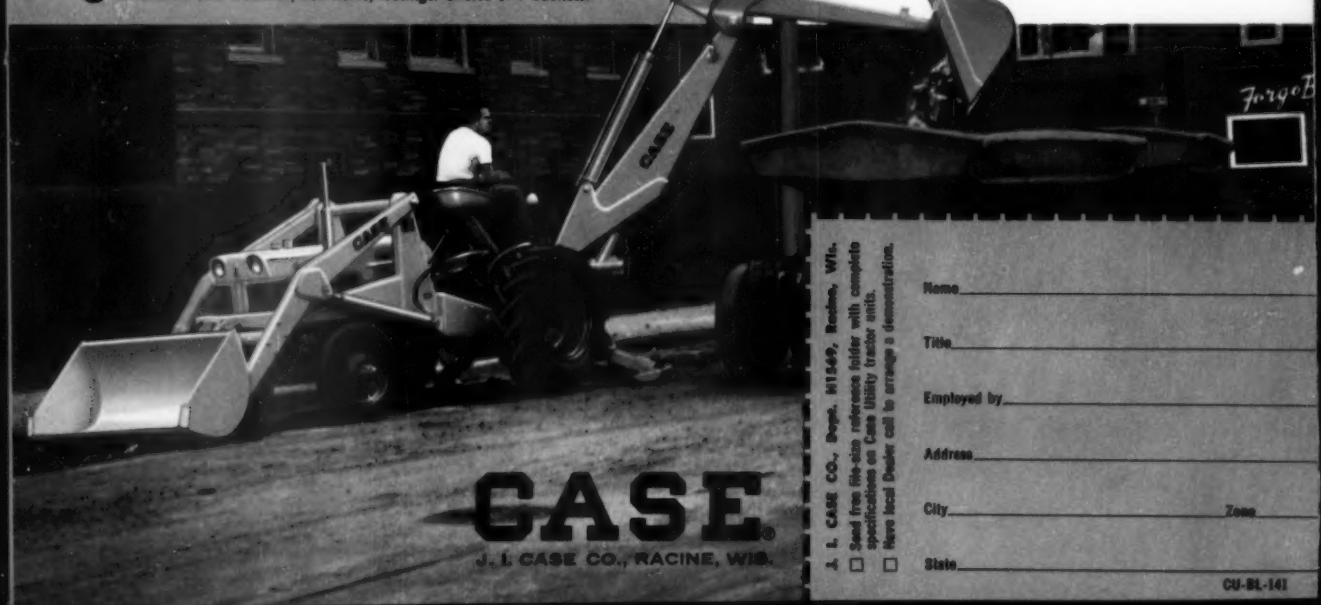
1 BACKHOE cuts trenches, bell-holes, footings. Choice of 7 buckets.

If your men dig trenches by hand or with oversized or specialized rigs — or sweat and labor at more than two of the numbered construction tasks *above* — you'll be time, money and community service ahead with versatile Case 210B *Utility* Backhoe-Loader to do all the jobs *below*.

You can *mechanize* repair jobs with one Case 210B... finish faster... reduce manpower... free your oversized rigs for heavier work. On re-laying, extension and new work you can pair-up a 10′ Case Backhoe with a "straight" 210B front-end Loader or with the deeper-digging 12½′ Case 310B. These powerful, low-investment machines help put new facilities in service fast, un-block traffic sooner, handle your jobs easier and at less cost.

Mobile Case 210B digs 10′ deep, reaches more than 15′, cuts 14′ of 4′-deep trench without moving, cycles fast to cut more "hole" per hour. Loader gets heaped bucketfuls quickly, lifts 1000 lbs. to a height of more than 10′, dumps clean with over 8′ clearance for fast dump-and-go. Quick-change loader attachments handle materials, spoil, and small equipment, plus dozing.

FREE TO MUNICIPAL OFFICIALS... Complete file folder of specifications on J. I. Case *Utility* wheel and crawler tractors and matched equipment. Clip and mail coupon for your copy, today!



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☐ Send free 64-page reference folder with complete specifications on Case Utility tractor units.
☐ Have local Dealer call to arrange a demonstration.

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Key to Better Pavements From Coast to Coast

TRAFFIC ROUTE 31, IN SOUTHWESTERN PENNSYLVANIA

Across the nation, Chevron Asphalts and Bitumuls Emulsified Asphalts are being used extensively by roadbuilders to provide more and better roads for every dollar spent.

KEYSTONE STATE HIGHWAY CONTRACTOR BIDS PROVE ASPHALT DOLLARS GO FARTHER

The Federal Government's 90% payment of Interstate Highway costs has not reduced the need for economy nor the importance of getting more miles of durable pavements for our highway dollars.

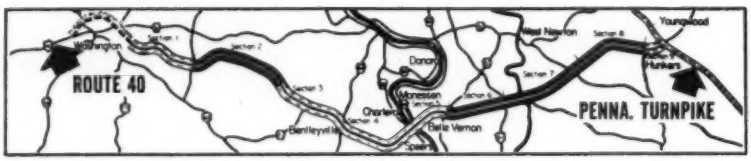
Contractor bids and the awarded contractor prices for Interstate Traffic Route 31 of the Pennsylvania State Highway System prove that asphalt paving dollars go farther. TR 31, an important 43.17 mile main Interstate Highway which connects the Pennsylvania Turnpike and Interstate Route 40 was constructed of 21.74 miles of concrete and 21.43 miles of asphalt. Both types of pavement are on the same route and carry the same traffic. They were specifically designed for comparable service.

The total accepted bid price for the 21.43 miles of asphalt: $2,300,450.08. The total accepted bid price for the 21.74 miles of concrete: $3,273,056.51.

Average cost per mile for *concrete* pavement $150,554.57

Average cost per mile for *asphalt* pavement $107,347.18

AVERAGE PER MILE SAVING WITH *ASPHALT PAVEMENT* . . $ 43,207.39



Congress, State Legislatures, and Highway Engineers are now concerned about funds to continue the construction of our important and badly needed Interstate System. The savings resulting from adequately designed, long-life, economical asphalt pavements for the Interstate System will not only allow more rapid completion of the System, but in addition will benefit all of us by providing needed dollars for the constructing, widening, and resurfacing of important primary, urban, and farm-to-market roads.

Chevron Asphalt and Bitumuls products are available—coast to coast—for use by roadbuilders everywhere. They are backed by service facilities unmatched in the paving industry. A phone call to one of our more than fifty plants, refineries, terminals or offices will bring the information you need on any product or pavement design problem.

American Bitumuls & Asphalt Company

320 MARKET, SAN FRANCISCO 20, CALIF.
Perth Amboy, N. J.
Baltimore 2, Md.
Cincinnati 38, Ohio
Atlanta 8, Ga.
Mobile, Ala.
St. Louis 17, Mo.
Tucson, Ariz.
Portland 8, Ore.
Oakland 1, Calif.
Inglewood, Calif.
San Juan 23, P. R.

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties

Only salt produces a bare pavement such as shown on this residential street. Here traffic can move with complete safety.

Result of salt and plowing. Note difference between center of road and area where cars parked after plowing, preventing application of salt.

damage by using only that which is absolutely essential.

Early in 1959 the City Manager, Robert P. Aex, in cooperation with the author, decided to hold a test and to discontinue the use of salt during one storm when plowing could be carried on to a greater extent than usual. This test was to determine whether or not traffic could be maintained by plowing alone. We determined this test must be conducted under weather conditions that would give a saltless period the greatest possibility of success and at the same time would minimize possible harm to the public. After repeated postponements this test was held on March 27, 1959.

On Thursday evening, March 26, a very light snow started shortly before midnight. At 3:00 A.M. on the 27th the accumulation amounted to about three-quarters of an inch so we ordered the salting of main arteries to prepare the streets for morning traffic. The snow fall increased gradually until 4:30 A.M., when, with over two inches of snow on the ground and a moderate fall in progress, the plow drivers were called to work. Plowing commenced at 5:30. The snow continued to fall but the plows were well ahead of the traffic. The temperature was near freezing (31°) and the morning traffic melted the snow on freshly plowed streets.

At 7:15 A.M. we decided conditions were appropriate for the test and agreed to discontinue the use of salt during a time when plowing

Winter	Inches of Snow	Tons of Salt Used	Tons of Salt Per Inch of Snow
1953-1954	77.5	25,355	328
1954-1955	69.2	24,605	356
1955-1956	121.4	35,635	294
1956-1957	79.2	22,265	282
1957-1958	130.8	26,650	206
1958-1959	140.6	38,732	276

Note: The comparative drop in tons of salt per inch of snow during the 1957-1958 season was due to the nature of the season, a particularly violent series of storms over seven weeks preceded and succeeded by unseasonably moderate weather.

2 NEW, ALL-NEW CRANES FROM AUSTIN-WESTERN

A-W CRANES ARE—
- ECONOMICAL • HIGH PRODUCERS
- VERSATILE • EASY TO MAINTAIN
- HIGHLY MANEUVERABLE • FAST, MOBILE

Austin-Western now offers you a complete line of LIFT, CARRY and PLACE equipment . . . designed to make more profit for you in every operation! Investigate. See your nearby Austin-Western distributor today or write us.

ALSO AVAILABLE:

MODEL 210
5-ton range
self-propelled

MODEL 210-P
5-ton range
for truck or stationary mounting

MODEL 220
6-ton range
self-propelled

NEW MODEL 410

10 TON CAPACITY RANGE

- 11′ 1″ overhead clearance
- Hydraulic topping
- All-wheel drive
- Torque converter
- Continuous 360° boom rotation
- Boom raises to 60° from horizontal
- Short 15′ 8″ turning radius, 17′ 8″ w/outriggers
- 25′ telescoping boom can be extended to 47′
- Power booster front-steer
- Full hydraulic rear steer
- Hydraulic outriggers
- Gas or diesel power
- Self-propelled; speeds to 23 mph plus
- Unobstructed visibility
- 10′, 22′ manual boom extensions

NEW MODEL 110

3-5 TON CAPACITY RANGE

- Low 8′ 10″ overhead clearance
- Hydraulic cable hoist
- Boom swings 220°
- Torque converter
- Power booster steer
- Rear trunnion steer
- Road speed 2-15 mph
- Outlifts all other 3-wheel cranes over-the-side!
- Hydraulic topping
- 18′ 7″ boom reach
- Unobstructed visibility
- Full reverse transmission
- Dual front driving wheels
- Gas powered, self-propelled
- Boom raises to 50° from horizontal

Available with wide range of accessories for added versatility!

Austin Western 1859 AUSTIN-WESTERN 1959 — 100th YEAR — PARTNERS IN PROGRESS

CONSTRUCTION EQUIPMENT DIVISION
AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

BALDWIN BLH LIMA-HAMILTON

(Advertisement)

was in full force. We advised no one of this experiment because we wanted unbiased reactions from police officials and traffic engineers.

During the early morning few people complained and all traffic moved in a normal fashion. The mild temperature allowed the car wheels to find the pavement and help melt the remaining snow. The salt residue from the early morning trip assisted in the melting process. Gradually, however, slush began to accumulate and, although traction remained good, a second plowing got under way after 1:00 P.M.

Our plowing routes give high priority to the main arteries and downtown streets and by 1:45 P.M. most of these pavements had been plowed. By about 1:45 P.M. however, the temperature had started a rapid five-degree drop to 26°, the effect of the residue salt was over, and the inch or so of snow left behind the plows remained on the pavements. A slippery condition from this hard packed snow and ice built up, particularly at the downtown intersections and slight grades. Calls from police officers, the transit company, our own supervisory personnel and many private citizens began flooding the switchboard of the Complaint Bureau and the Ice and Snow Control Office. The Superintendent of Street Cleaning, in direct charge of ice and snow control, said that conditions would become intolerable unless we used salt. The Commissioner of Public Safety requested salt and the Rochester Transit Company indicated that schedules could not be maintained. The remarks and comments of individuals were acrid.

After personal inspection, to make certain that the conditions were being accurately reported and that the complaints were based upon a real need for relief we completed the experiment by ordering a salt run at 2:30 P.M. One run relieved the hazardous condition and by 3:30 P.M. the city was back to normal.

This no-salting test, conducted under conditions which gave a maximum possibility for success, substantiated our original convictions. The second plowing was ordered as soon as it could be effective and the drop in temperature experienced at about 1:45 P.M. was not an unusual occurrence in this locality where frequent temperature changes are experienced, particularly during a storm. Yet in a period of less than a half hour, driving conditions in the city deteriorated from good to intolerable. Cars braking at intersections began to slide and cars starting up could not get traction. The effect of poor traction between intersections became noticeable. If salt trucks had not been loaded and ready to move we would have been tied up in traffic snarls with a great probability of serious accidents. Had there been a salt run during the latter part of the morning or early in the afternoon this condition would not have occurred, as there would have been residue salt on the pavement in sufficient quantity and of sufficient strength to prevent the forming of the slippery surface when the temperature dropped. We are convinced that salt, properly used with plowing, is still the best for snow and ice control.

EDITOR'S NOTE: In 1947, a vocal minority also protested the use of salt for fear of damage to cars. However, City Manager L. B. Cartwright overcame the objection, with the strong support of transit, taxi, and other automotive fleet operators who valued the traffic safety that salt provided. See "The Battle of Salt," November 1948, p. 121-2.

TENNANT MODEL 100 is available with cab, power steering, flashing lights, rotating beacon, etc.

Now . . . a new way to sweep up ALL the dirt

You've never seen such clean sweeping as you'll get with the TENNANT Model 100 Vacuumized Sweeper.

Powerful pickup. Cleaning a 7'4" path, this remarkable new sweeper gets virtually *all* the dirt. Particles fine as 5 microns (far smaller than human eye can see) are caught by the huge 540 sq. ft. filter.

No dust, no water. Since the Model 100's powerful brush-and-vacuum system captures the dust, there's no need for water spray . . . therefore no unsightly mud streaks, no winter freeze-up problem.

Many uses. Short (10'2") turning radius and ultra-clean sweeping makes the TENNANT 100 ideal for downtown areas, alleys, parking lots, tunnels, bridges, air terminals, better residential areas . . . wherever you want *really clean sweeping!*

WRITE TODAY *for complete specifications and performance data. G. H. Tennant Company, 7511 N. Lilac Drive, Minneapolis 22, Minnesota.*

TENNANT

VACUUMIZED SWEEPERS

(*Advertisement*)

20-FT. DELAVAUD CAST IRON PRESSURE PIPE AVAILABLE SOON

Griffin-20 Trademark

COUNCIL BLUFFS. First to produce a complete line of cast iron pressure pipe in modern 20-ft. lengths in the 4- to 12-inch diameter size range by the Delavaud process will be the Council Bluffs foundry of the Griffin Pipe Division, Griffin Wheel Company. Selection of Griffin-20 as its trademark will apply to all pipe, which will be manufactured in accordance with A.W.W.A., A.S.A., and Federal Specifications of cast iron pressure pipe for water and gas distribution.

Pipe Available March, 1960

Conversion of the existing Griffin foundry, and the installation of pipe-producing equipment are well under way, and scheduled for completion in a few months. Joints to be offered include slip-on, mechanical, and bell and plain end. All pipe will be either cement-lined to full specification thickness, half thickness, or uncoated, as required.

10% Fewer Joints

Market surveys conducted among water works operators, city engineers, consultants, and piping contractors in the Plains States overwhelmingly pointed to the need for longer lengths to help reduce mounting labor costs in installing pipe. Griffin-20 pipe decreases the number of joints by 10 percent, as compared to conventional 18-foot lengths, with resultant savings in handling and installation.

Many Foundry 'Firsts'

In its 82-year history, Griffin research has made many contributions to the advancement of foundry practices in ferrous metallurgy, including the de-sulphurization of molten metal with the use of briquetted soda ash known as Purite; the hot blast cupola; use of tellurium for improved chill control in the manufacture of chilled iron castings; and many others. More recently, Griffin perfected a process for the pressure pouring of molten ferrous metals in permanent graphite molds. Griffin's new research center, now under construction in Bensenville, Illinois, will also include facilities for pipe research and developing pipe products.

American Steel Foundries Subsidiary

In addition to the Council Bluffs pipe foundry, Griffin now operates foundries in St. Paul; Denver; Salt Lake City; Tacoma; Kansas City and Muncie, Kansas; Chicago; Cincinnati; Colton, California; and two in Canada. Griffin is a subsidiary of American Steel Foundries, which has 27 plants in 15 states and Canada.

Modern Water Rates PART VIII

Raise Your Water Rates For Out-of-City Users

Any out-of-city user who wants water from a municipally-owned water works ought to pay a premium to get it. A city has a right to increase its water rates anywhere from 25% to 100% for out-of-city users, depending on the basic rate that it charges its own people. It ought to make an additional charge for fire protection.

These fringe-dwellers represent that well-known group who want to get away from the so-called viciousness and confusion of city life with its high taxes (particularly its taxes) and enjoy the idyllic solitude of the country. The only trouble is that in these rural paradises wells are often expensive and not particularly reliable. Water is one of several city services that these people want badly, even while relaxing on the patios of their ranch houses denouncing the "graft and corruption" within the city whose government has been enterprising enough to provide those services.

The question is not whether these out-of-city water users should pay an increased rate. The questions are how much and how should they be billed?

You can calculate how much by recognizing the factors involved in the water supply service. A water utility owned by a private company will not necessarily increase its rates when it reaches across a city boundary because it has already set its charges to bring a fair and reasonable profit. Thus, the more water it sells, the greater its earnings. A municipally-owned water system, in contrast, operates without taking into account certain cost features that a private company must consider. For example:

• a municipally-owned water works pays no local property taxes; a privately owned company does. Payment of the equivalent to property taxes loses significance when the water users and the local taxpayers are the same people. However, it assumes importance when some of those wanting to use the water live in an area that does not pay local taxes to the local government owning and operating the water service.

• a municipally-owned water works does not have to earn dividends for its "stockholders;" a privately owned company does.

In addition, certain other factors must be considered, that a privately owned water utility certainly would take into account. For example:

• in general, the water must be pumped further, running up transmission costs.

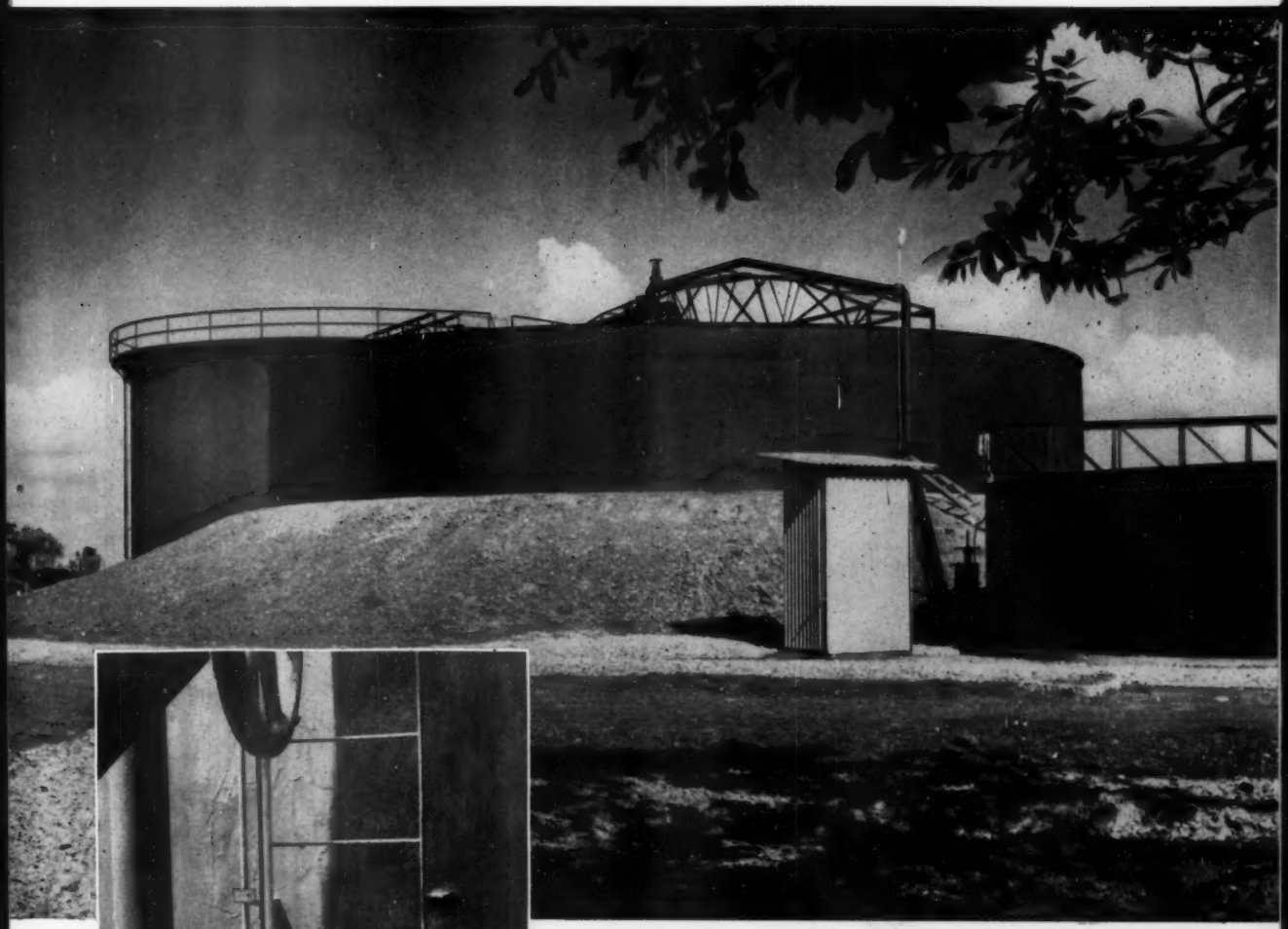
• in most cases, out-of-city customers place their heaviest demands on the system when water supply problems are most troublesome.

Out-of-city customers generally have large lawns, and consequently use large volumes of water for lawn irrigation. In the average city-wide water system, the peak load may run from 1½ to 2 times the daily average. In a strictly residential suburb, this peak can rise to as much as 8 or 9 times the daily average. This means that the city water department will have to provide pumping and storage capacity that will be used only for about three months of the year.

So when you calculate rates for these out-of-city customers, be sure, first, that you make a fire-protection charge. The presence of the water main and the fire hydrants will by themselves lower fire insurance rates for these people and be of material protection. We will discuss fire-protection charges in more detail in ensuing months.

Next, make a theoretical recalculation of your own water works' financial structure, taking into account the factors just mentioned. Then adjust your water rate so that it will earn an amount sufficient to cover these costs. You can charge such a rate to your out-of-city customers. You do not need to charge it to those in the city.

If you do not want to go to the trouble of reading out-of-city meters, you can follow the policy developed by Kansas City, Mo., who



J. B. Dannenbaum, Consulting Engineer of Houston, notes:

"Bitumastic No. 50 given only minor touch-up in 12 years on Solarobic* Process tanks"

The Solarobic Process, developed by J. B. Dannenbaum, uses steel for Imhoff, trickling bed and clarifier tanks at considerable saving in construction costs. Thirty such plants have been installed since 1947: the large illustration shows a new plant at Angleton, Texas, built to serve a population of 10,000. The inset photo shows the excellent condition of the Bitumastic® coatings on the pioneer installation.

Mr. Dannenbaum has standardized on a double thickness of Bitumastic No. 50 for corrosion prevention on both inner and outer tank surfaces. The thick dry-film characteristics of this coating system gives it long life: "In 12 years experience with Bitumastic No. 50 on both steel and concrete, no maintenance other than touch-up has been required," states Mr. Dannenbaum.

Bitumastic protective coatings, with their waterproof coal tar base, have long been popular for sewage plant protection. For more information on their applications in this field, fill out the coupon. Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pa. District Offices: Boston, Chicago, New York, Los Angeles, Pittsburgh and Woodward (Birmingham) Ala. In Canada: Koppers Products, Ltd., Toronto.

*Patent pending

KOPPERS

BITUMASTIC

COATINGS AND ENAMELS

another fine product of COAL TAR

KOPPERS COMPANY, INC., Tar Products Division
Dept 103H, Pittsburgh 19, Pa.

Please send me your brochure "SEWAGE PLANT PROTECTION."

Name_____ Title_____

Firm_____

Address_____

City_____ Zone_____ State_____

has 27 plants in 15 states and Canada.

developed by Kansas City, Mo., who

The scene is South Broad Street, with City Hall in the background.

Laying steel pipe in PHILADELPHIA: 1907

1959—Installing 60-in. tar-enameled Bethlehem steel pipe in Northeast Philadelphia. Contractor: Armour Excavating, Inc.

When the city photographer snapped this pipe-laying crew on Broad Street in 1907, the city was installing nearly 27 miles of steel pipe, in 48-in. and 36-in. diameters. Most of that pipe is still in service—after more than 50 years on the job!

Matter of fact, in Philadelphia they have for many years specified steel pipe for most mains over 30 in. ID.

Today a network of over 3,000 miles of pipe lines supply upwards of 350 mgd to a population now well over two million.

Many of the nation's largest cities, like Philadelphia, use steel pipe for major, large-diameter water mains.

For steady, reliable service, for high flow capacity, for leak-proof joints, for long-range economy—specify tar-enameled steel pipe. Your nearest Bethlehem sales office would be happy to give you full information.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

protection. For more information on their applications in

*Patent pending

Address
City Zone State

Modern Water Rates (Continued)

sells only to organized water districts or companies. The city bases its rates on the following factors:

- **a demand charge based on the maximum daily demand on any day except Sunday or a holiday, from June through September.**
- **a demand charge based on the excess of the maximum hourly demand between 4:30 p.m. and 8:30 p.m. on any day except Sunday or holidays during the same period.**
- **a volume charge of 5½c per 100 cubic feet for the first ten days of use or the maximum daily demand (until 10 times the maximum demand has been purchased).**
- **a commodity charge of 5½c per 100 cubic feet for the remainder of the water used (a complete description of the Kansas City practice can be found in THE AMERICAN CITY, May 1952, pp. 99-101).**

Of the cities whose rates have been published in THE AMERICAN CITY's water rate series, 30 make a surcharge to customers wanting service beyond the city limits. These include the following:

City	*Percent*
Antioch, Calif.	100
Atlantic, Iowa	50
Austin, Texas	50
Biloxi, Miss.	50
Binghamton, N. Y.	50
Clarksdale, Miss.	25
Des Plaines, Ill.	100
Englewood, Colo.	10
Eau Claire, Wis.	25
Falls Church, Va.	25
Holland, Mich.	50
Ithaca, N. Y.	100
Jackson, Tenn.	40
Longview, Wash.	60
Lorain, Ohio	10
Medford, Ore.	50
Monroe, N. C.	50
Morristown, N. J.	20
Muscogee, Okla.	40
Newburgh, N. Y.	135
New Castle, Ind.	10
New Orleans, La.	50
Oshkosh, Wis.	15
Painesville, Ohio	10-25
Phoenix, Ariz.	5
Pocatello, Idaho	50
Princeton, W. Va.	25-65
Spartanburg, S. C.	50
West Palm Beach, Fla.	50
Wichita, Kansas	40

DIST. OF COLUMBIA

Semiannual Rates

Cubic Feet	*Per 100 Cubic Feet*
First 3,600 ..... (Minimum of)	$7.00
Excess	.12

Arlington County, Virginia, obtains water from the Dalecarlia Treatment Plant (a D. C. plant) through its own trunk mains for $100 a million gallons.

A limited amount of water is furnished the Washington Suburban Sanitary Commission for consumers in Montgomery County, Maryland and Prince George's County, Maryland, which is metered at 13 points around the perimeter of the District of Columbia. The rates vary at each metered point and range from $113.10 to $177.85 a million gallons.

Minimum Semiannual Charges

For all meter sizes..... $7.00

Typical Semiannual Costs

Gallons	*Cubic Feet*	*Charges*
18,000	2,400 (Min.)	$7.00
30,000	4,000	7.48
60,000	8,000	12.28

General Data

Population served		1,185,000*
Miles of mains		1,253
Services	*Number*	*% Metered*
Dom.—Metered	110,048	99.51
Unmetered	536	
	110,684	
Commercial	16,763	100
Fire Protection Connections	497	0

Supply—Potomac River
Treatment—Coagulation, settling, rapid and slow sand filtration (2 plants), fluoridation, pH adjustment, chlorination.
Plant capacity ..... 234 mgd
Average demand..(in D. C.) 136.610 mgd
outside 18.540 mgd

*Based on 1,010,000 estimated number of consumers in District of Columbia (including transients) & 175,000 estimated number of consumers in Arlington County.

Remarks

1. User bears the entire expense of service lines.
2. A front foot benefit assessment of $3 per foot is charged to user in new subdivisions in the District for main extensions.
3. The Department of Sanitary Engineering operates and bills for both water and sewer services.
4. Billing is done on Burroughs automatic equipment.
5. Water rates were increased 22% in 1954, and water consumption dropped. Further rate increase of 9% in 1958 was made.
6. The District makes no fire protection charge.

DAVID V. AULD
Director of Sanitary Engineering
Department of Sanitary Engineering
District of Columbia

FARGO, N. D.

Rates Per Quarter

(Residential)

Gallons	*Per 1,000 Gallons*
First 250,000	$0.30
Next 250,000	.23
" 500,000	.20
Excess	.16

A minimum sum of $1.25 is charged each quarter for all meter sizes. Commercial premises are billed on a monthly basis. Rates for water are the same as residential, but the minimum of $1.25 is charged monthly instead of quarterly.

All premises using water cooled air conditioners which do not conserve and re-use their water are charged $2.50 per month per rated ton of the air conditioner during the months from June through September.

There is no special rate for out-of-city users.

Service Charge

The Fargo Water Department makes an annual service charge based on meter size. This charge is collected in installments with the bill rendered for each billing period. Charges are as follows:

Meter Size (in inches)	*Annual Charge*
⅝	$ 3.60
¾	6.30
1	12.60
1¼	16.20
1½	19.80
2	32.40
3	45.00
4	63.00
6	99.00

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$3.60
15,000	2,000	5.40
30,000	4,000	9.90

General Data

Population served	48,000
Miles of mains	121.894
Services (100% metered):	
Domestic	8,842
Commercial	1,100

Supply—Surface
Treatment—Lime-soda softening, chlorine sterilization, CO_2 stabilization, chloramine residual, rapid sand filtration, 1 ppm fluorides added.
Plant capacity ..... 15 mgd
Average demand ..... 4.7 mgd

Remarks

1. The Fargo Water Department maintains service lines to property only.
2. The Water Department provides the cost of replacement main extensions.
3. The supervision of the Water and Sewage Departments was combined under one Superintendent on July 1st of this year, with billing for both handled through a central office.
4. Automatic billing equipment is used.
5. Water rates were increased by 60% in 1954. Water use was not affected. No further adjustment is needed.
6. An annual charge of $34 per hydrant is made to the city general fund for use of hydrants in fire protection.

P. L. EIDE
Acting Superintendent
City Water Department
Fargo, North Dakota

FAYETTEVILLE, N. C.

Rates Per Month

(Inside City)

Gallons	*Per 1,000 Gallons*
First 3,000 or fraction thereof (Minimum of)	$1.00
Next 17,000	.30
" 20,000	.25
" 60,000	.20
Excess	.15

Rates Per Month

(Outside City—Residential)

Gallons	*Per 1,000 Gallons*
First 4,000	$0.667
Next 6,000	.45
" 20,000	.40
Excess	.30

Minimum Monthly Charges

Inside the city there is a minimum monthly charge of $1.00 which applies to all meter sizes. Outside the city there is a minimum monthly charge of $2.00 which applies to all meter sizes.

Rates Per Month

(Outside City—General Service)

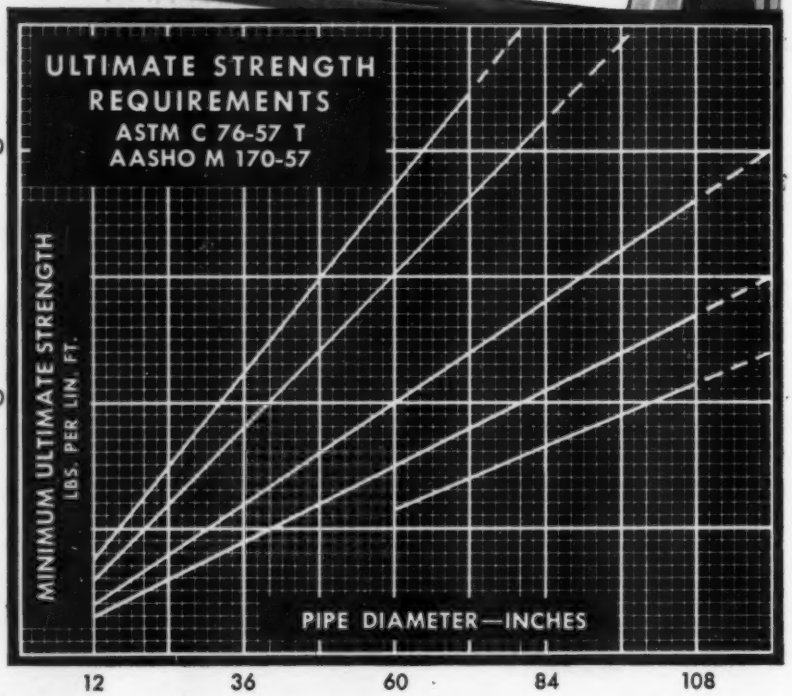
Gallons	*Per 1,000 Gallons*
First 10,000	$0.75
Next 20,000	.50
" 70,000	.30
" 300,000	.25
GPM Block*	.22
Next 600,000	.20
Excess	.09

*GPM (gallons per minute) are recorded during a day in the current billing period. The figure 100 is deducted from the re-

STRENGTH

COMPARE THESE CONCRETE PIPE STRENGTHS WITH ANY OTHER

All classes of reinforced concrete pipe for greater strength and safety factor —as well as standard and extra strength non-reinforced concrete pipe— are available from American-Marietta Company to meet ASTM, AASHO and Federal Specifications.



AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

corded GPM and the remainder is multiplied by 5,000 to determine the amount charged for at 22c per 1,000. The charge for users of this block shall not be less than 90% of the average charge established from the previous eleven months.

Minimum Monthly Charges

(Outside City—General Service)

Meter Size (in inches)	*Charge*
⅝	$ 2.25
¾	2.75
1	4.00
1½	7.50
2	12.00
3	28.00
4	45.00
6	100.00

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges (In City)*	*(Outside)*
3,000	400	$1.00	$2.00
5,000	667	1.60	3.12
10,000	1,333	3.10	5.37

General Data

Population served	50,000
Miles of mains	160
Services (100% metered)	
Domestic	11,215
Commercial	1,449
Supply—Two creeks	
Treatment — Flocculation, sedimentation, filtration (alum, lime, chlorine, carbon, sodium silico fluoride, sodium silicate).	
Plant capacity	8 mgd
Average demand	5½ mgd

Remarks

1. The cost of service lines is provided by the user both inside and outside the city.
2. Inside the city, user pays one-half the cost of main extensions and it is refunded over an 8-year period. Outside the city, user pays $125 initial fee and $3 per foot for main extensions.
3. The Public Works Commission of Fayetteville operates and bills for both water and sewer services.
4. National Cash Register equipment is used in billing.
5. Water rates were revised last in 1949. A study now under way will probably result in further revisions.

D. J. Gore
Manager
Public Works Commission
Fayetteville, North Carolina

FREMONT, NEB.

Rates Per Month

Cubic Feet	*Per 100 Cubic Feet (In City)*	*(Outside)*
First 500	$ .20	$ .30
Next 7,500	.08	.09
" 92,000	.05	.06
Excess	.04	.04

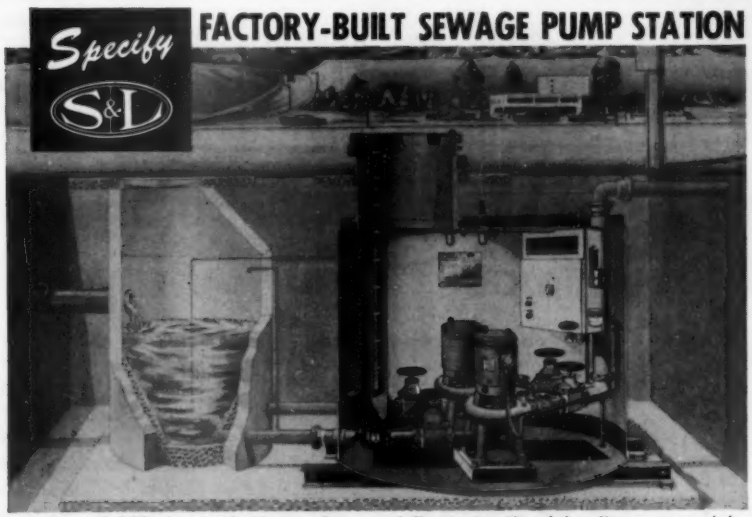
Excess bracket $0.03 October to March, inclusive.

Minimum Monthly Charges

Meter Size (in inches)	*Charges (In City)*	*(Outside)*
⅝	$ 1.00	$ 1.50
	(Minimum)	
¾	1.00	(unused)
1	2.00	2.00
1¼	2.50	(unused)
1½	3.00	3.00
2	4.00	6.00
3	6.00	6.00
4	8.00	8.00
6	12.00	12.00
8	16.00	16.00

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charges (In City)*	*(Outside)*
3,000	400	$1.00	$1.50
		(Minimum)	
5,000	667	1.13	1.65
10,000	1,338	1.66	2.25



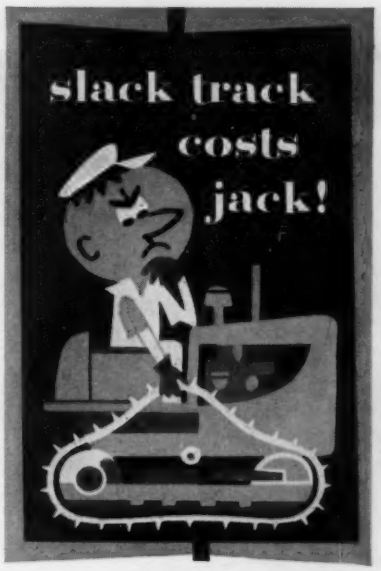
Over 1,000 installations from coast-to-coast, including Alaska and Canada prove the merit of specifying Smith & Loveless Factory-Built sewage pump stations . . . America's finest! The compact, easy-to-maintain Smith & Loveless pump station is economical, efficient and manufactured of the finest materials. It is easily and quickly installed following delivery to the job site on special Smith & Loveless trucks.

Smith & Loveless offers a complete line of lift stations with capacities from 20 GPM to 4800 GPM.

For job recommendations, complete specifications and drawings write today for our free, 100-page data manual on pump stations and pneumatic ejector lift stations. Write Department 10

By the makers of America's finest factory-built sewage treatment plants. 48

S&L Smith & Loveless, Inc.
P.O. BOX 8884 • KANSAS CITY 15, MISSOURI
Representatives in principal cities



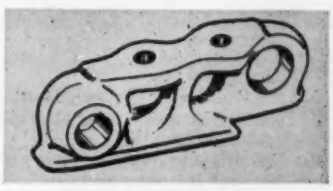
Even "the toughest track ever made" (Allis-Chalmers, of course) needs adjustment to give you the extra life that's built into it. Make this on-the-job track check.

Take a pry bar and see how far you can raise the track above one of the support rollers. More than *two inches* means it's too loose. Take up the slack, move the tractor back and forth to equalize the tension, then check again.

Regular track inspection is an easy way to make sure you get the most out of "the toughest track ever made."

WHAT **toughest**
REALLY MEANS

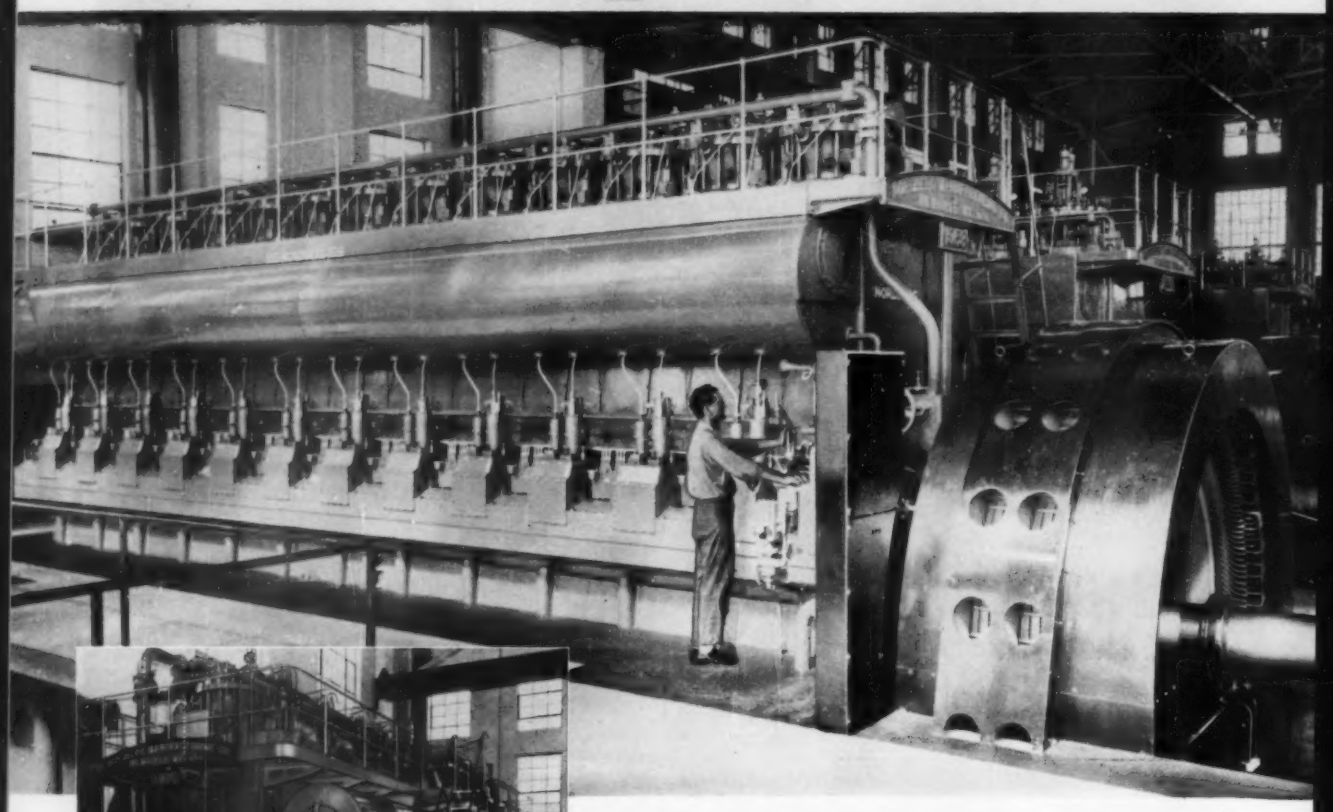
It's more than just talk. Take sidebars, for instance. Some track makers get by with mere *surface* hardening, which sacrifices wearing quality for easier machining. But Allis-Chalmers *deep*-hardens the forged steel, leaving a tough inner core for high impact strength. Then, *pin and bushing bores only* are annealed, and the superhard sidebar is machined to precise finish dimensions.



The moral of the story: *Stay on the right track*—"the toughest track ever made." Get original-quality parts from your Allis-Chalmers dealer.

move ahead with AC
ALLIS-CHALMERS
power for a growing world

Why taxpayers vote YES ☒ for money-saving diesel power



P959

In Ponca City, Oklahoma . . .

9 NORDBERG ENGINES help make a net profit of almost $1,000,000 a year

The world's largest dual fuel engine is helping the Ponca City, Oklahoma municipal power plant attain new records in production volume, operating economy, and net profits. This 8,500 horsepower Nordberg Duafuel® unit (shown at left), together with eight other Nordberg engines in this notable plant, produced a total of over 55 million kilowatt-hours in the fiscal year ended June 30, 1958, at a total production cost of just 5.67 mills per kwh. *Net profit for the year was over $920,000.00, and net plant profit for 10 years exceeded $7,000,000.00.*

Ponca City and its Light Department owe much to experienced Superintendent of Utilities Pat Schlesinger, who not only directs operations but engineered the big installation. This highly successful municipal plant is a joint achievement, with credit due to Mr. Schlesinger's able staff and to the many present and past city officials who cooperated in the development of this efficient and profitable municipal utility . . . an outstanding example for other municipalities to follow.

POWER PLANT PROGRESS

1924—First 1250 hp Nordberg Diesel installed at Ponca City.

1926—Second 1250 hp Nordberg Diesel installed at Ponca City.

1928—Two more 1250 hp Nordberg Diesels installed.

1937—2250 hp Nordberg Diesel started (converted to dual fuel in 1947).

1947—2400 hp Nordberg Duafuel engine installed.

1949—3600 hp Nordberg Duafuel unit added, one 1250 hp unit retired.

1952—4275 hp Nordberg Duafuel engine went into service.

1953—5135 hp Nordberg Duafuel installed.

1955—Ponca City's latest addition—10-cylinder, 29" bore x 40" stroke Nordberg Duafuel engine, rated 8500 horsepower.

©1959, N. M. CO.

NORDBERG MANUFACTURING COMPANY • Milwaukee 1, Wisconsin

ATLANTA • CLEVELAND • DALLAS • DULUTH • HOUSTON • KANSAS CITY • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS
SAN FRANCISCO • TAMPA • WASHINGTON • TORONTO • VANCOUVER • JOHANNESBURG • LONDON • MEXICO, D. F.

General Data

Population served	20,000
Miles of mains	68.99
Services (100% metered)	5,461
Supply—Deep-well pumps	
Treatment—None	
Plant capacity	30 mgd
Average demand	3¼ mgd

Remarks

1. Utility provides no part of service lines.
2. The cost of main extensions within the city limits is provided by the property owner, who is charged at a per-front-foot rate or else the subdivider may pay for the entire cost of the water main, and charge a portion of it back to each lot.
3. The Department of Utilities operates, bills and collects for both water and sewer services.
4. Automatic billing equipment is not used.
5. Water rates were increased by roughly 33% in 1956. Rate adjustment did not affect water use. Sewer charges were adopted in 1952. Water and sewer rates need no further adjustment at present.
6. Fremont makes no fire protection charge.

HUGH R. SEAGLE
Superintendent, Water Department
Fremont, Nebraska

LAS VEGAS, NEV.

Rates Per Month

Service Charge	$3.10
All Water	$0.14 per 1,000 gallons

Fire Protection

Size Service (in inches)	*Monthly Charge*
3	$ 5.00
4	7.00
6	10.00
8	13.00
10	17.00
12	20.00

Typical Monthly Costs

Gallons	*Cubic Feet*	*Charge*
3,000	400	$3.52
5,000	667	3.80
10,000	1,333	4.50

General Data

Population served	50,000
Miles of mains	213
Services (100% metered): Total of	13,157
Supply—Wells & surface	
Treatment—Chlorination	
Plant capacity	40 mgd
Average demand	20.4 mgd

Remarks

1. Las Vegas Valley Water District provides service line to property only.
2. Subdivider pays cost of main extension and is refunded 15% of revenue collected for 10 years.
3. The Las Vegas Valley Water District neither operates nor bills for sewer services. The water district is separate from the city.
4. Billing is done on National Cash Register equipment, Utility Model 611-11.
5. Meter rates were first established in 1955. The present schedule was put into effect September 1, 1958.

W. C. RENSHAW
Chief Engineer & General Mgr.
Las Vegas Valley Water District
Las Vegas, Nevada

SO. NORWALK, CONN.
(Second Taxing District)

Rates Per Quarter

(Residential and Commercial)

Gallons		*Per 1,000 Gallons In District*	*Outside*
First	10,000	Minimum	Minimum
Next	90,000	$0.27	$0.40
"	150,000	.20	.25
"	1,000,000	.15	.16
"	1,200,000	.14	.15
Excess		.12	.13

with PM Barricade Kits
you can replace the damaged parts!

Yes, PM Barricade Kits give you the most flexible replacement system ever devised for barricades. You just replace the damaged part and your barricade is back in business! *An extra job profit of $5.00 per barricade per month for you!*

PM Transistor Neon or Incandescent Flasher Warning Lights put profit in your pocket, too! They're lighter, brighter, require less maintenance.

Write for free demonstration. There's a PM Field Engineer near you.

ONE YEAR WARRANTY ON ALL PM PRODUCTS

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Manufacturers of the Thomas Electronic Organ

PLAY SAFE WITH Burke

CLIMB-AROUND

The safest, most versatile climbing fun ever devised. Sloping sides make the climber lean forward in the safest climbing position. Will not tip even without footings. Has no sharp edges, no rough corners. Built to last a lifetime—in all weather. Sizes: 8'4" to 12'4" high; 10'8" to 24" ground dia.

SEE OUR COMPLETE LINE OF PLAYGROUND EQUIPMENT

For Information Write Dept. G

The J. E. Burke Company
FOND DU LAC, WISCONSIN
NEW BRUNSWICK, NEW JERSEY

Don't kid yourself! An extra half inch of wear on the cutting edge of your dirt-mover can cost you plenty! Wear that chews into the moldboard weakens it—especially around bolt holes. Then you may have to rebuild or even replace the whole works!

Renew or replace cutting edges and bits before moldboard wear starts. You'll be money ahead on repairs and 'way out front in dirt-moving efficiency.

ONLY THE BEST IS A BARGAIN!

Speaking of moving dirt, Allis-Chalmers really has the edge! Take dozers, for instance. Cutting edges and end bits are made of finest alloy steel, forged and electronically heat-treated in a process that deep-hardens working faces for extra-long wear, toughens the core to resist impact. For rock-dozing or worse, Allis-Chalmers makes *heavy-duty* edges, end bits and wrap-around end bits.

The man from your Allis-Chalmers dealer knows all about moldboards—for a new machine or reconditioning one you own—and the edges he recommends are *right*. Whatever you need, get original-quality Allis-Chalmers parts—*made for the machine*, best for the job.

move ahead with
ALLIS-CHALMERS
power for a growing world

SAN FRANCISCO • TAMPA • WASHINGTON • TORONTO • VANCOUVER • JOHANNESBURG • LONDON • MEXICO, D. F.

Onan NEWS REPORT

Department uses two Onan plants to fight fires, and hurricanes, too!

The 1,500-watt portable Onan plant mounted on the rig above is strictly a fire-fighting tool for the Oxford, North Carolina department. Quickly detachable from the truck mount, it can be carried right up to the fire site to operate floodlights and tools.

The Onan 10,000-watt standby plant below helps fight fires and other disasters. In addition to assuring power for police radio, headquarters lighting, and the air-compressor fire signal system, it also serves the local Civil Defense organization, guaranteeing radio communications when a hurricane or other disaster strikes the community.

10KW PLANT HANDLES ALL ESSENTIAL NEEDS

Radio, air compressor and lights are on the emergency circuit. A flip of the switch starts the plant. Onan also supplies automatic start-stop transfer controls for permanent installations where personnel are not always on duty.

Call the Onan distributor listed in your phone book or write for information

D. W. ONAN & SONS INC.

ELECTRIC PLANTS GENERATORS ENGINES ENGINE-COMPRESSORS
2545 University Avenue S.E. • Minneapolis 14, Minnesota

Onan ELECTRIC PLANTS

Rates Per Month

(Industrial)

Gallons	Per 1000 Gallons In District Minimum	Outside Minimum
First 3,333		
Next 30,000	$0.27	$0.40
" 50,000	.20	.25
" 333,333	.15	.16
" 400,000	.14	.15
Excess	.12	.13

Minimum Quarterly Charges

(Residential and Commercial)

Meter Size (in inches)	Charge In District	Outside
⅝	$ 3.75	$ 5.25
¾	4.50	6.00
1	6.75	9.00
1½	9.00	12.00
2	12.00	15.00
3	31.50	36.00
4	45.00	45.00

Minimum Monthly Charges

(Industrial)

Meter Size (in inches)	Charge In District	Outside
⅝	$ 1.25	$ 1.75
¾	1.50	2.00
1	2.25	3.00
1½	3.00	4.00
2	4.00	5.00
3	10.50	12.00
4	15.00	15.00

Fire Protection

Per year per hydrant $15.00

Typical Quarterly Costs

(Residential and Commercial only)

Gallons	Cubic Feet	In District	Outside
9,000	1,200	$ 3.75*	$ 5.25*
15,000	2,000	5.10	7.25
30,000	4,000	9.15	13.25

* Minimum

General Data

Population served 25,000
Miles of mains 100.1
Services: 6,440 in all, 89% metered
Supply—Surface
Treatment—Slow sand filtration, chlorination, lime added
Plant capacity ..... 4½ mgd
Average demand ..... 3½ mgd

Remarks

1. Utility provides no part of the service line.
2. Utility charges user $5.00 per foot for the cost of new main extensions.
3. Water department does not operate or bill for sewer service charges.
4. Billing is done on Addressograph and National Cash Register billing and posting machines.
5. Domestic rates were first instituted in 1953. The institution of water rates affected water use, especially in regard to lawn sprinkling. No further adjustment is needed at this time.

ELMER F. BRACKEN
General Manager
Second Taxing District Water Dept.
South Norwalk, Conn.

YANKTON, S. D.

Rates Per Month

Gallons	Per 1,000 Gallons Minimum
First 2,000	
Next 10,000	$0.35
" 20,000	.30
" 40,000	.25
" 50,000	.20
Excess	.15

Outside of city limits the rate is double.
The city is authorized to make such special rates and contracts as in their discretion shall seem best with consumers using more than 250,000 gallons of water per month.

Minimum Monthly Charges

Meter Size (in inches)	Charge
⅝ and ¾	$1.00
Larger than ¾	1.65

Typical Monthly Costs

Gallons	Cubic Feet	Charge In City	Outside
3,000	400	$1.35	$2.70
5,000	667	2.05	4.10
10,000	1,333	3.80	7.60

General Data

Population served 11,000
Miles of mains 30
Services (100% metered): Total of 2400
Supply—Missouri River
Treatment—Softening by lime and soda ash
Plant capacity ..... 4 mgd
Average demand ..... 2 mgd

Remarks

1. No part of service line is provided by the city. City makes tap on main.
2. Property owner pays the cost of mains that serve him.
3. Both water and sewer services are operated by the Yankton Water Department, but there is no charge for sewer services.
4. Billing is done on Burrough's automatic billing equipment.
5. The water allowance for the minimum charge was changed from 3,000 to 2,000 in 1954. Rate adjustment did not affect water use, and no further adjustment is needed.

E. E. HIRSCHMAN
Superintendent Water and Sewers
Yankton Water Department
Yankton, South Dakota

Los Angeles Conducts Swimming Pool Clinic

The 30,000 swimming pools in Los Angeles should be in good operating condition if the efforts of the Los Angeles City Health Department produce expected results. To help public pool operators and the hundreds of pool servicemen in the city learn the best practices in swimming pool maintenance, the Department sponsored a Technical Institute of two days' duration last May. The program was supported by the Pool Servicemen's Associations and the Municipal Pool Operators' Association. Aspects covered by the program included:

- **algae control, especially black algae, which was explained by Frank Blair, owner of "The Pool Man," a pool service company, San Mateo, Calif.**
- **pumping deficiencies on sand or diatomaceous earth filters, by Jack Culleton, chief engineer for the Pacific Pumping Company.**
- **an analysis of various filtration methods, by Bill Baker, president, Swimquip Corporation.**

Each serviceman or operator attending the complete clinic received a certificate. Technical details about the program can be obtained from Henry F. Eich, Director, Sanitary Engineering Division, Los Angeles City Health Department, 111 East First St., Los Angeles 12, Calif.

GRIMCO Signs

THE BEST COSTS LESS

BECAUSE...
they last longer! and look better! meet U.S. standards!

OVER 200 WORDINGS IN STOCK
DIE-EMBOSSED ON ZINC COATED STEEL

Write for a quote

GRIMM STAMP & BADGE CO.
8105 Rosalie • St. Louis 17, Mo.

New Transistorized Pipe, Valve & Cable Locator

Contains many features never before found in a pipe locator:

- Single turn solid metal loops cast into the fiberglas case
- Switch on transmitter to allow for good and poor conductive ground
- Three-position sensitivity switch on receiver plus variable gain control
- Ten transistors—7 in receiver, 3 in transmitter

Plus these other deluxe features:

- Transmitter and receiver each operate on 4 flashlight batteries—average life 1400 hrs.
- Battery tester on receiver and transmitter
- Depth level indicator
- Adjustable drop handle
- Pulsed transmitter
- Will locate valves and pipes at greater depth and will trace pipes farther

MOST POWERFUL PORTABLE PIPE LOCATOR MADE TODAY!

Write for free literature

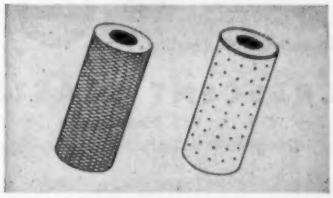
Gardiner Electronics Co.
Dept. 27
2545 E. Indian School Rd., Phoenix, Arizona

A thick mud overcoat on your tractor engine could cost you more than mink! Mud acts like insulation, impairs cooling of exposed surfaces—and you may be heading for an expensive overhaul. In any case, overheating steals power, spoils lube oil and cooks the life out of engines.

Hose the day's mud off. Clear away dirt or brush—especially around the engine and radiator. This not only helps cooling, it may also uncover trouble before it starts costing you money!

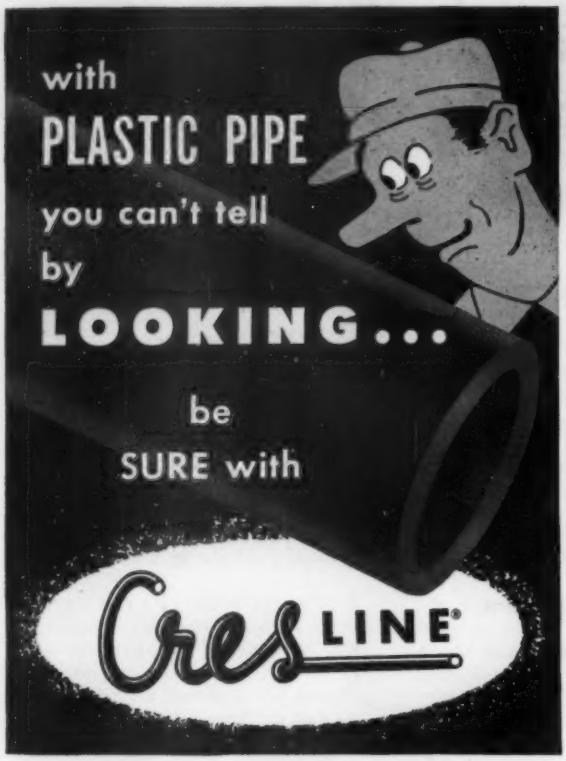
KEEP IT CLEAN INSIDE, TOO!

Efficient filter protection keeps Allis-Chalmers engines clean *inside*. Large fuel filters, full-flow oil filters and oil bath air cleaner with pre-cleaner are on guard against all kinds of sneaky, wear-causing dirt particles you might never see.



Help your engine live a long, healthy life. Service filters regularly and replace elements at recommended intervals. The service expert from your Allis-Chalmers dealer knows best replacement periods for any conditions. See him for genuine Allis-Chalmers replacement filters—*made for the machine*, best for the job.

move ahead with AC
ALLIS-CHALMERS
power for a growing world



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Performance is not in the "look" of plastic pipe. It's in the ingredients, the skill with which it is manufactured, and the proof of performance through rigid tests. Crescent Plastics is a pioneer in the relatively young field of plastic pipe. Through research, we continually improve our product and find new and better raw materials. Our testing laboratory, one of the industry's leaders, checks results *before* the pipe is marketed. That's why every foot of Cresline pipe is guaranteed in writing to perform as specified.

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Before you order any kind of plastic pipe, challenge us to prove you'll do better with Cresline.

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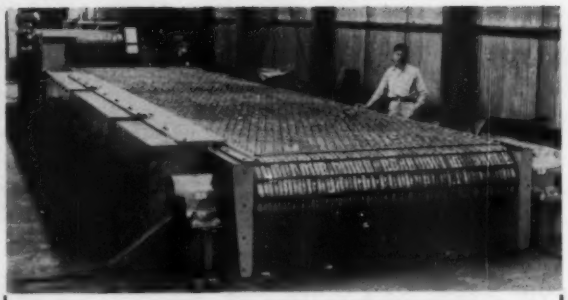
Complete Technical and Engineering Services Available

PLASTIC PIPE OF ALL KINDS FOR



New York's **Successful "CHAIN GRATE" Incinerator**

The above Incinerator was installed in New York City's Gansevoort Refuse Disposal Plant.

Why has our Design proven Best by Test?:

- Cast steel grate surface—non-breakable, trouble-free operation.
- More tuyere sections for better distribution of air.
- Front take-up is easily accessible to operator.
- Patented cast steel links, over-lapping to prevent fouling.
- Continuous discharge of refuse from grate surface.
- Applicable to largest incinerators up to 24-feet wide.
- Minimum labor and maintenance required for operation.
- No heavy stoking or cleaning of fires . . . ease of operation.

ILLINOIS STOKER COMPANY

ALTON, ILLINOIS

ETNYRE

Street Flushers

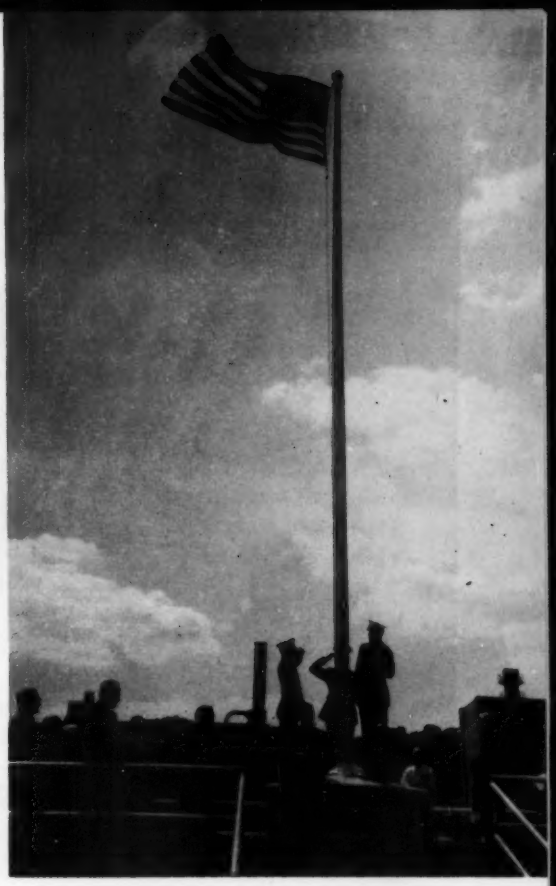
"THE MACHINE OF A DOZEN USES"

KEEP YOUR STREETS "HEALTHY"

During the hot, dusty months of midsummer an Etnyre Sanitary Street Flusher will keep your streets clean, cool and healthful by reducing bacterial count and disease hazard, laying dust and cooling hot pavements. Streets up to 42 feet wide cleaned in ONE TRIP—even under parked cars. See your Etnyre dealer for full information or write us today!

E. D. ETNYRE & CO., Oregon, Illinois

The official dedication of the Mill Creek plant took place in front of the laboratory building.



The flag is up—and another multi-million dollar plant goes to work officially for the City of Cincinnati.

More Sewage Purification

. . . plus better financing procedures promised at Ohio sewerage conference

Sewage purification men who gathered at the 33rd annual meeting of the Ohio Sewage and Industrial Wastes Treatment Conference, learned that more such facilities must and will be built in the future, particularly in the Ohio River area. They also learned some basic facts on how to finance these important structures.

The meeting also served to dedicate Cincinnati's big, new Mill Creek Sewage Works, a backbone link in the city's program to clean up its portion of the Ohio River (see June, 1959, pp. 87-91). The dedication ceremonies honored:

- **Hudson Biery, long-time chairman of the city's Stream Sanitation Committee and first Chairman of the Ohio River Valley Water Sanitation Commission, an 8-state compact executed in 1948;**
- **Messrs. H. S. Morse, H. P. Eddy, F. H. Waring and F. C. Tolles, in recognition of engineering services.**
- **C. A. Harrell, Cincinnati's city manager; and**
- **T. J. Montgomery, Cincinnati's city engineer, for his 27 years with the city.**

During the dedication, Arthur D.

Visitors attending the Ohio Sewage and Industrial Wastes Treatment Conference get pre-view of the well-equipped laboratory of the Mill Creek Plant prior to the dedication ceremonies on June 18.

Schramm Portable 125 Compressor gives any municipality a real break on initial cost—and on operation, too. Reason: Modern, economy-loaded piston design. Gives more power, uses less fuel. Available: gasoline or diesel.
SPEED LIMIT 35

Save up to $1700 on Schramm 125 Compressors

Why pay more than necessary for a 125 cfm air compressor? Schramm gives you the lowest initial cost of any compressor manufacturer—plus additional cost savings in operation and repair. However, this lower cost is *not* from price slashing or quality cutting shortcuts, but is the result of lower manufacturing costs inherent in the production of piston-type compressors. It's a fact—you get superior quality at lower cost from the simplified design which can be manufactured more economically.

You also get increased savings with . . .

Lower fuel consumption Schramm Model 125 uses from 15% to 50% less fuel than competitive air compressors. Yet it delivers more power—a full 125 cfm of air, not just a fraction of it.

Less Maintenance Operating features of piston-type design provide more fool-proof operation, result in less downtime. Any mechanic can easily service without special training.

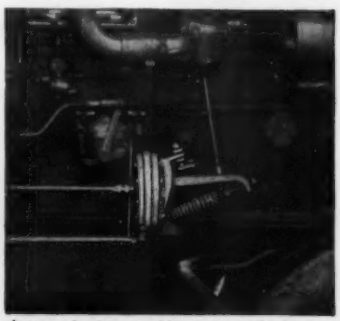
Fewer and Less Costly Replacement Parts 90% of the wearing parts between engine and compressor are interchangeable, fewer parts to replace. Replacement parts also cost less—as much as one-seventh of competitive parts.

Don't spend one cent extra for any size compressor until you can investigate *all* the facts. See your local Schramm Dealer, or write today for your copy of Bulletin SPB-58.

See the Yellow Pages for local Sales, Service and Rental of Schramm Air Compressors.

Schramm, Inc.
MANUFACTURERS OF AIR COMPRESSORS
618 North Garfield Ave. • West Chester, Pa.

Schramm Portable 125 powers two pneumatic tools with *full* 125 cfm of air . . . produces full rated power—increases workers' efficiency.



Automatic air control is a feature of Schramm Compressors. The patented Schramm Pneumastat controls speed of each unit without operator manipulation. Engine operates from idle to full speed according to air demand.

Caster, Principal Engineer of the city's Metropolitan Sewage Disposal System, was "commissioned" a full-fledged and official "Kentucky Colonel."

The Mill Creek plant is one more big gun added to municipal plants that have more than doubled actual gallonage-per-day capacity in the state during the past ten years, according to Dr. Ralph E. Dwork, Ohio's State Director of Health in a paper delivered during technical sessions. With purification now well over a billion gallons per day, state residents have, during that period, purchased and erected more sewage purification units than in the entire previous history of the state.

And industries have not been idle, Dr. Dwork continued, for there are now 372 firms providing satisfactory waste treatment, compared with 134 providing such treatment in 1952.

The director warned, however, that despite the outstanding record, too many communities and too many industries have failed to approach satisfactory standards, so the Ohio organization still has "rough days ahead."

Dr. Dwork predicts that the next ten years will see:

1) a rapid, virtual crash program to complete installation of waste treatment facilities in municipalities and industries that need them;

2) a stepped-up program of improving and expanding existing facilities to meet growing needs;

3) a real campaign to eliminate inadequate sewer-collection facilities;

4) a growing public demand for even better protection of waterways; and

5) an educational campaign to help the public have a better understanding of the overall problem.

Support Federal Aid

Ralph E. Fuhrman, Executive Secretary of the Federation of Sewage and Industrial Wastes Associations, stressed the broadening scope of sewage treatment operations and construction, reminding members that, with federal aid completing its third year in force, the billion - dollar - per - year construction and operating budgets represent a good chunk of the national economy. He emphasized that responsibility for support that would keep the program alive rested largely with member organizations of the Federation.

During the course of a panel discussion on sewer rentals and rate studies, lively interest was gener-

ated by comments of W. T. Eiffert, director of the Department of Water, Dayton, Ohio. Mr. Eiffert pointed out that Dayton, like so many cities, maintained the same quarterly sewer service charges based on water use for almost 25 years, prior to 1951, with a fairly uniform record of deficit budgeting and a resultant deterioration of plant and services. In 1951, minimum charge rates were increased from $1.00 to $1.50, which placed income for succeeding years slightly higher than total expenses. By 1956 expenses again exceeded income, and plans were made for another charge increase.

Mr. Eiffert presented facts and figures that proved once again, he said, an informed public reacts intelligently to solve the problems of the community—if the clear and factual picture of those problems is presented to them. The Department of Water conducted a campaign with cooperation of city officials, news media and civic organizations, highlighting growth of department responsibilities, activities and needs, and pointing out necessity for additional plant facilities to cope with area growth, then turned the matter over to the public in the form of a referendum.

The result was gratifying. More than 55% of the ballots favored a quarterly sewer service charge of $2.20 (minimum, to and including 3,000 cubic feet), effective August 1, 1959. This represents an increase from the $1.50 rate of 1951 that exceeds 46.5%—and with public sanction.

South African Water Project Has International Flavor

In South Africa, the Cape Town water supply project has a truly international flavor. The principal contractor for the dam itself was a British firm; the Lock Joint Pipe Company of Orange, N. J., manufactured and laid the pipeline; contractors that built the treatment plant hailed originally from Australia; the spillway gates were manufactured and fabricated in Germany; a Dutch sub-contractor was responsible for the valve tower bridge; and an Italian sub-contractor built the spillway hoist gallery.

The project, involving $22,400,000, assures Cape Town and some 14 adjoining local authorities adequate water for the next two or three decades. It was directed by Dr. S. S. Morris, city engineer, Cape Town.

Challenging Program Offered Public Works Men

The 1959 Public Works Congress and Equipment Show of the American Public Works Association will be held this year in Seattle, Wash. from September 20-23. This year's challenging program offers something of interest to all public works officials.

Monday's program is devoted to the annual business meeting and several general sessions. On Tuesday those in attendance can get down to real business in the various shirt sleeves sessions that have proven so popular in past meetings.

The program consists of four concurrent all-day forums covering the subjects of Solid Wastes, Streets and Highways, Water and Sewage, and Buildings and Equipment.

A Workshop on Administrative Problems serves as the highlight of Wednesday's program. During this session the audience will participate in small round table discussions.

As in the past, an extensive equipment exhibit will add to the knowledge of all in attendance. Advance reports indicate this year's show will be one of the best yet.

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Municipal Public Relations

The City Tells Its Story

Edited by **PAN DODD EIMON**
Consultant, Municipal Public Relations

City officials use public relations skills to develop better parking facilities

Georgia Town Comes Up With Off-street Parking By Mixing a Railroad, Citizens, Beautification

It's not often a city government can solve half-a-dozen problems with a single project. But that's what has happened in College Park, Ga., where smoothing out right-of-way troubles with the Atlanta and West Point Railroad will result in a landscaped strip from one end of town to the other, a much-needed business district parking lot, and a satisfied railroad company.

Playing a catalytic role in the whole affair are College Park citizen organizations and local businessmen. The former are devoting time and money to the beautification project. The latter have agreed to help pay for the parking facility.

City Manager Ridley T. Nichol says that the chain reaction started with city efforts to get the railroad —which passes through College Park parallel to Main Street—to keep its right-of-way trimmed. In recent years, the right-of-way had become an eyesore and the city was threatening legal action to enforce municipal regulations on the care of vacant properties.

For some time, too, College Park has needed off-street parking facilities in the downtown area.

Someone came up with the idea of a swap to please everybody. The city would assume responsibility for the railroad's right-of-way if the railroad would allow certain portions of the right-of-way to be developed as a parking area. Atlanta and West Point officials liked the proposal. Mayor Billy Stephenson and other city officials said "yes" for College Park. Then it was up to Manager Nichol to arrange for fixing up the right-of-way and developing the parking lot.

The College Park Chamber of Commerce had long proposed beautifying the railroad right-of-way. One of its members, landscape architect Dana Jones, drew up a design for the entire area. A plan was decided upon in consultation with landscape and public works people.

Since College Park is a suburb of Atlanta and Atlanta is known as the "Dogwood City," the plan calls for planting dogwoods the entire length of the city, on both sides of the railroad tracks. The

Atlanta's Chamber of Commerce donated 50 dogwood trees for College Park's dogwood lane which will fill an unsightly railroad right-of-way. Ladies from Atlanta plant the first tree with help from City Manager R. T. Nichol (kneeling) and other College Park officials.

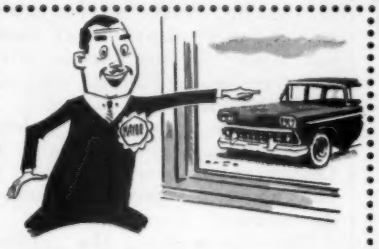
Landscape architect Dana Jones (kneeling) explains his design for the College Park project to City Manager Nichol, Mayor Billy Stephenson, representatives of the Woman's Club, and Carl Allen, executive secretary of the Chamber of Commerce.

The Story of the Mayor's Muddle...

In common with many municipal officials, Mayor Smith is worried. Budget Director Brown has given him the bad news about soaring car fleet costs.

"Gentlemen of the Council," intoned the Mayor. "If we don't cut our fleet costs, we won't have enough money in the budget to feed these gas-thirsty monsters."

"We'll have to rebuild the municipal garage to house these overgrown cars. And that, of course, will take another big bite out of the taxpayer's dollar. Big cars sure have us in a muddle."



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"Because Rambler is compact, we can park more of them in the municipal garage without building an extension. And Rambler's top resale means we'll get more at replacement time."

Yes, Rambler helped solve Mayor Smith's muddle. With the city's Rambler fleet saving the taxpayer's dollar, His Honor has found that budget problems are not nearly as worrisome.

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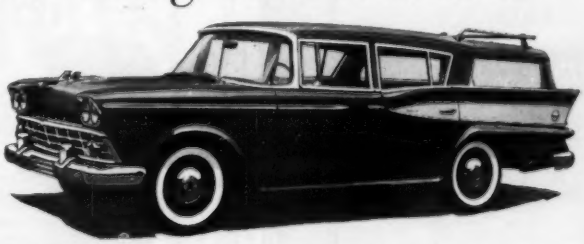

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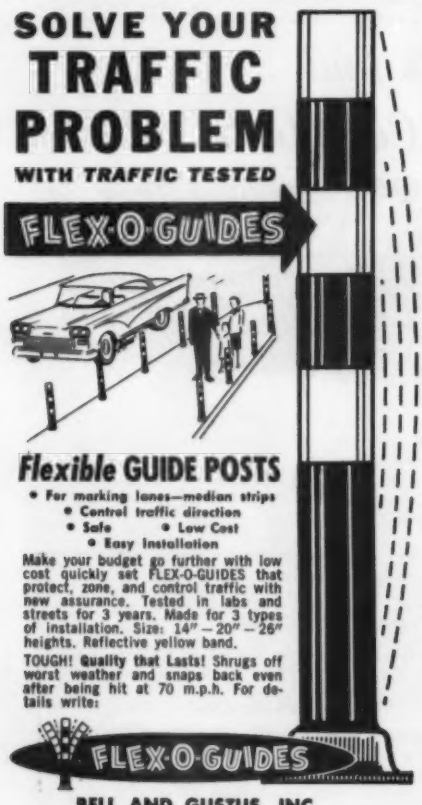

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City of College Park is clearing the right-of-way and planting grass. Civic groups have been asked to donate trees.

Plots of land around railroad crossings presented another problem. The landscaping design called for shrubbery and plants at the crossings but Manager Nichol found cost estimates far too high for the city to handle. Groups were invited to take a crossing as a project.

Promptly the College Park Women's Club agreed to finance the crossing opposite its headquarters. The club will put up about $200 for shrubbery and plans to erect a bronze plaque to its founder in the park-like area.

City officials are confident that other civic groups will volunteer for the other crossings. The citizen groups pay for plants and all materials used. The city provides labor and supervision. Planting must accord with the overall design.

Meanwhile, city officials, local merchants, and other Chamber of Commerce members got together to talk about the proposed parking development.

The city is doing the grading, drainage, and curb work. Owners and tenants along Main St. are bearing the expense of the pavement. The Chamber of Commerce is soliciting merchants and property owners for a share of the cost.

College Park Manager Nichol thinks this project has a moral for city officials. "Some city officials fail to call on their people to *act* as citizens," Ridley says. "So they miss out on a rewarding partnership," that can mean a great deal to the community.

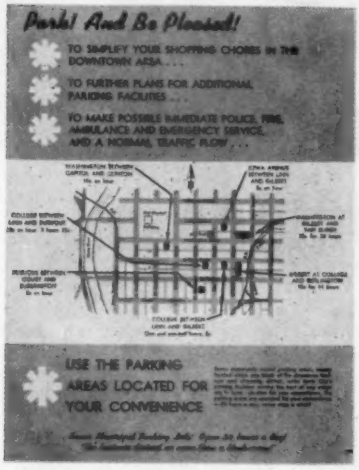
Formal Invitation to Municipal Parking Lots

Iowa City, Iowa, has issued a formal invitation to citizens to use all the city's seven downtown parking lots. The invitation is a well-designed black-and-white self-mailing folder, 8½ by 11 inches in size, folded twice to business-envelope shape. It was sent to every household in the city.

The folder includes a map of the downtown area showing where each municipal lot is located and the price charged for parking. Rates are as low as 10c for 24 hours. The most expensive parking is 10c an hour. The lots are open 24 hours a day, seven days a week.

The lots are centrally located and make shopping chores easier. Use of the city lots creates more parking revenue which will mean additional facilities since revenue from

present lots is used to provide more spaces. And, getting cars into the city lots and off downtown streets "makes possible immediate police, fire, ambulance, and emergency service and a normal traffic flow."


Park! And Be Pleased!
TO SIMPLIFY YOUR SHOPPING CHORES IN THE DOWNTOWN AREA . . .
TO FURTHER PLANS FOR ADDITIONAL PARKING FACILITIES . . .
TO MAKE POSSIBLE IMMEDIATE POLICE, FIRE, AMBULANCE AND EMERGENCY SERVICE, AND A NORMAL TRAFFIC FLOW . . .
USE THE PARKING AREAS LOCATED FOR YOUR CONVENIENCE

Motorists responded to this invitation to use Iowa City's parking lots.

Another Iowa city information folder for citizens answers the question: "Where does my tax money go?" The 22 by 5½-inch sheet folds to 4¼ by 5½ inches for mailing.

It shows, by graph and drawings, how the Iowa City property tax is divided between city and county governments, the state, and the school system; how the tax bill is figured on an average home; the tax rate for the last six years (1953-1959); and how the city spends the average tax bill ($6.04) each month.

And the folder graphically shows sources of Iowa City 1959 income. Parking revenue accounts for 11% of total income and is the largest single income source with the exception of property taxes which bring in 60%.

Intelligent advertising of city parking facilities—via the "invitation"—has created consistent use of the city lots. This in turn, makes it possible for the city to develop further facilities consistent with the demands of downtown traffic, business growth, and citizen requirements.

Copies of the parking brochure and the tax leaflet may be obtained from the Office of City Manager, City Hall, Iowa City, Iowa.

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How 13 Cities Specify Engines For Fire Apparatus

. . . and why more standardization would help get good equipment at lower cost

By **WILLIAM F. JOHNSON**, City Buyer, Louisville, Ky.

Through the facilities and the cooperation of the National Institute of Governmental Purchasing, Washington, D. C., an inquiry went to some of the well-governed cities with populations of 400,000 and more to learn how they specify engines for fire apparatus. The inquiry sought the answers to these eight questions:

1. **Are 6-cylinder engines acceptable?**
2. **Are 12-cylinder engines acceptable?**
3. **Are cubic-inch displacements specified?**
4. **Are torque ratings specified?**
5. **Are horsepowers specified?**
6. **If these ratings are specified, advise minimum for each maximum gross vehicle weight.**
7. **Are brand names specified?**
8. **What is the method of determining engine specifications for fire apparatus?**

The purchasing department and/or the fire department of the following 13 cities responded:

Atlanta
Boston
Cincinnati
Cleveland
Denver
District of Columbia
Los Angeles
Louisville
Milwaukee
Minneapolis
Richmond
San Francisco
Seattle

Engine Types

All accept 6-cylinder engines. Two cities—Los Angeles and Milwaukee—will not accept 12-cylinder engines. Two replies did not indicate whether those cities would accept 12-cylinder engines if offered. The replies indicate that none of the 13 cities restricts bidding on equipment by brand names, although one city did restrict bidding to any one of three brands of engines. All other cities indicate brand names are included in their specifications only to identify the required type and quality of equipment. It is indicated that three cities permit and possibly prefer a 12-cylinder engine and that 8-cylinder engines are permitted and requested in some cases; this is true particularly where a commercial chassis is used.

Some of the cities responding had reported in response to surveys made during previous years that only 12-cylinder engines were acceptable whereas the same cities now indicate that they will accept 6-cylinder engines. This fact seems to indicate a trend of change in specification writing.

Other Answers

Are cubic-inch displacements specified? No, say Atlanta, Cincinnati, and Cleveland. However, San Francisco specifies 750 cubic inches for triple pumper.

Are torque ratings specified? No, say all except Minneapolis, Milwaukee, Seattle, Los Angeles, Denver, and Louisville. San Francisco requires for evaluation a chart of engine performance showing range of hp and torque at various speeds.

Are horsepowers specified? No, say Boston, District of Columbia, Cincinnati, and Cleveland. San Francisco specifies a minimum of 275 hp at 2700 rpm for triple pumping engines.

Seven of the cities give minimum rating for each maximum gross vehicle weight. Minneapolis specifies for gross vehicle weight 22,000 to 25,000 pounds, 700 cubic inches displacement, 275 hp at 2600 rpm, torque 550 foot pounds at 1000 to 1500 rpm.

Milwaukee says minimum ratings are determined by service requirements and engine performance tests. For a 750 gpm combination pumping engine, Richmond specifies 700 cubic inches displacement, 265 hp at 2600 rpm.

For triple combination pumping engines, Los Angeles requires not less than 935 cubic inches displacement and maximum torque 820 foot pounds.

Denver's maximum specifications for pumping engines are: for 750 gpm, 525 cubic inches displacement; net torque 400 foot pounds at 1000 rpm; 225 hp at 3750 rpm. For 1250 gpm, 900 cubic inches; 650 foot pounds at 1250 rpm; 275 hp at 2600 rpm.

Louisville's minimum ratings for a 500-gpm pumping engine used as a hose wagon are 370 cubic inches displacement, 355 foot pounds torque, 232 hp, for vehicle weight 20,000 pounds. For a 1000-gpm quint with 85-foot aerial, minimum cubic inches 935, torque rating not less than 820 for 38,000 gvw.

Engine Size

What is the method for determining engine specification for fire apparatus? Minneapolis determines engine sizes by minimum engine required to guarantee proper performance for the life of the vehicle. Richmond bases specifications on gross vehicle weight and size of pump. Cincinnati's performance formula is based on road speed, torque, and gvw.

Denver uses the power curves of engines as supplied by manufacturers. Los Angeles requires that

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59 FORD FLEETS

FORD DIVISION, *Ford Motor Company*

technical training of planning person- ever films that were made after

a certified power curve be submitted with bid. Specifications of the National Board of Fire Underwriters are used by Atlanta, Boston, and Cleveland.

Four of the cities specify brand names. Minneapolis does it where necessary to set a standard of quality, size or performance. Boston specifies brand names for information only. Seattle specifies a brand name "or equal." Milwaukee specifies three brands and types for 100-foot aerial and 1000 gpm combination pumping engine.

The information secured by the survey, while interesting, is inconclusive in establishing a pattern of specification compilation on a national scale. The net result of the survey is conditioned on the well known fact that the varied problems encountered by the different cities in fire fighting differ and consequently their organizational structures differ.

I believe that any experienced municipal purchasing agent would be pleased if more standardization and less special or custom-building were made prevalent in the fire apparatus trade, and perhaps municipal purchasing agents should take the initiative in developing standardization. Perhaps the idea of standardization for fire apparatus is idealistic but impractical. Some fire departments may be quick to affirm that any further standardization is impractical, if not impossible, particularly for their own individual needs. However, standardization should facilitate procurement of fire apparatus at lower costs and provide for the uniformity of operational functions and procurement as well.

Film Contest Announced on Planning and Housing

The Organizing Committee for the 1960 World Planning and Housing Congress invites entries for an international film contest on planning and housing. This Congress will be held in Puerto Rico in May-June, 1960, under the joint sponsorship of the International Federation for Housing and Planning (IFHP), the Inter-American Planning Society (SIAP), and the Commonwealth of Puerto Rico. This will be the first time that planning and housing professionals will be invited on a world-wide basis.

Entries should deal with planning or with any of its aspects, such as economic development programming, housing, urban renewal, social programming. The purpose of the contest is to acquaint an international audience of planners with quality films which furnish outstanding graphic illustrations of planning. Commercial advertising films and those which are concerned primarily with the technical aspects of building design, construction or engineering will not be eligible for the contest. However, films made for commercial purposes but which deal mainly with matters pertaining to planning or any of its aspects will be eligible for entry.

Entries will be classified according to the following categories:

a) Documentary or educational films (i.e., films dealing with the broad aspects of planning);

b) Promotional films for public participation (i.e., films designed to stimulate public support for the planning process); and

c) Training, technical or scientific films (i.e., films concerned with the

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technical training of planning personnel, particularly in regard to specific planning matters).

Films may be moving pictures or animated cartoons; color or black and white; sound films, with or without sub-titles. Films in languages other than English and Spanish and which do not carry sub-titles must be accompanied by a written synopsis in either of these two languages. Films must be 35mm or 16mm and must be 20 to 30 minutes long. Longer films may be considered at the discreition of the jury.

Films eligible are those that have been made after July 1956. However, films that were made after January 1950 may qualify provided that they were not registered at the Vienna (Austria) Film Contest held in 1956 at the 23rd Congress of IFHP.

The deadline for entries is September 30, 1959. Applications for entries must be submitted in writing to: International Planning and Housing Film Contest, 1960 World Planning and Housing Congress, P. O. Box 1729, San Juan, Puerto Rico.

The deadline for submission of the films themselves is March 30, 1960 but they should not be sent until the application has been accepted.

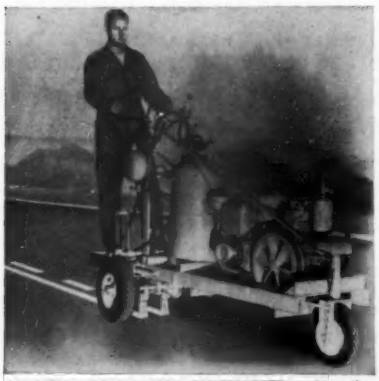
APWA Plans Tour to Seattle Congress

Those city engineers and other city officials planning to attend the American Public Works Association Congress September 20 - 23 in Seattle will be able to take advantage of a special, low-cost tour to and from the Congress city designed to show off the beauties of the American Northwest.

The tour is being organized by Milton Rosen, Commissioner of Public Utilities, St. Paul, Minn., and a former president of the Association. It will start at Chicago on September 15, will go through the Twin Cities, spend a day at Yellowstone Park, and proceed to Seattle on a scenic route through the Rocky Mountains.

At the end of the Congress, the tour will continue through the southern edge of Glacier National Park, return again by a scenic route to Chicago on September 26.

Full details on the tour can be obtained directly from Commissioner Rosen, 216 Court House, St. Paul, Minn.



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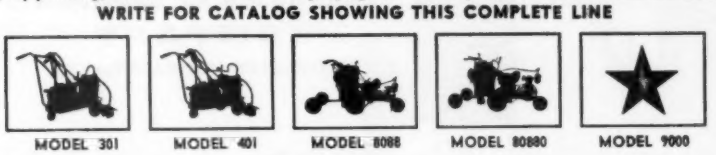

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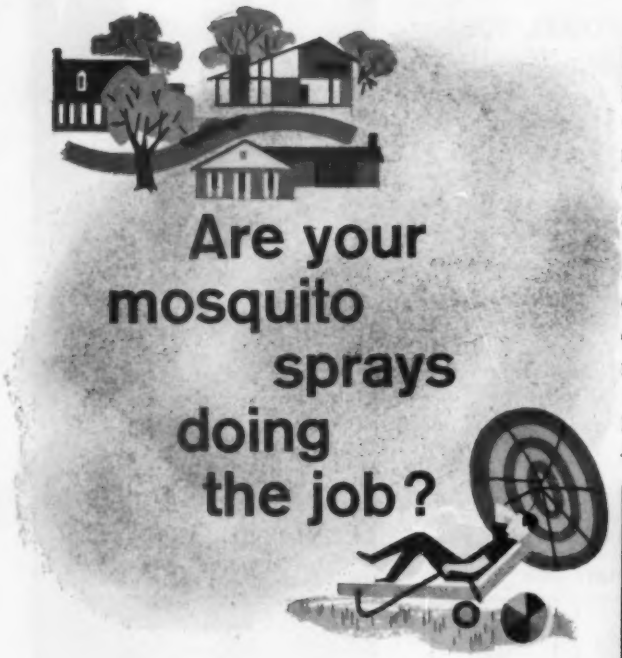

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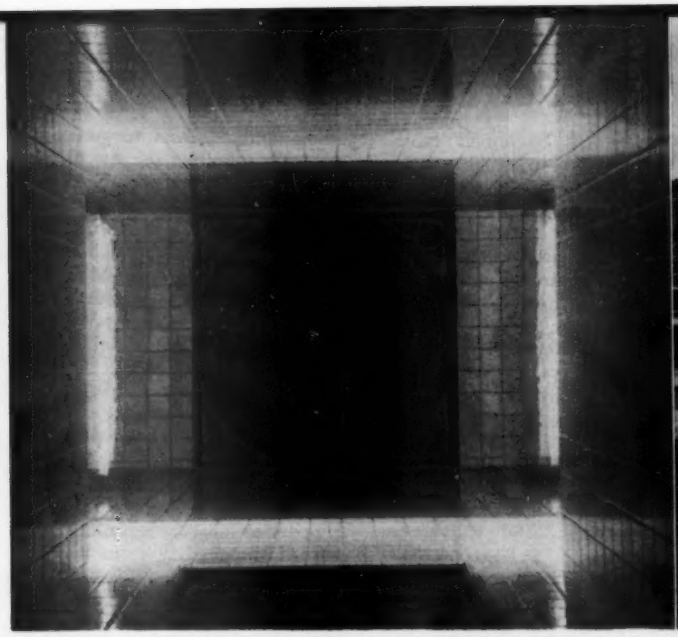
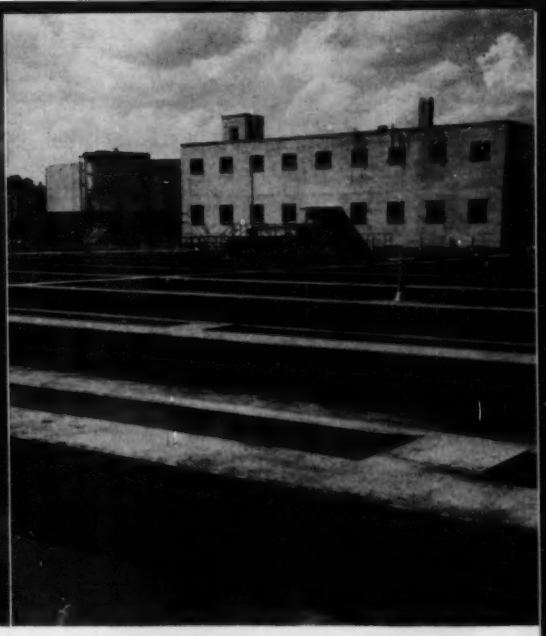


Showcase of the Cherokee Hill Treatment Plant is this sparkling finished water viewing well with the seal of Savannah brilliantly legible beneath 15 feet of treated water on its way to city mains.



Across the settling tanks is the chemical building with the alum storage tank beside it and a 4-million-gallon reservoir behind it.

10-mgd Expansion Strengthens Dual-Purpose Water Program

Savannah's separate domestic and industrial water systems, attractively priced, have stimulated the city's economic growth

By **BRUCE SAMS**
Superintendent
Water Department
Savannah, Georgia

A dynamic illustration of the effectiveness of water planning is the recent expansion of separate industrial raw-water pumping and Cherokee Hills treatment facilities by Savannah, Ga.

As early as 1930 the city was faced with supplying the thirsty needs of an aggressive and expanding industrial development on its fringe. There were two logical solutions for meeting demands, either of which would result in expensive construction programs.

Old Savannah — incorporated in 1789 but even then an established trade and cultural center during the days of "the rural South"—has been supplied by artesian wells since around 1880. These have been developed and expanded to meet domestic demands as the area grew. To develop a source of industrial water, the city had to:

1) tap supplies of new wells, extend distribution lines to plant sites — in some cases, enlarge existing lines to handle drastically increased water use to serve these plants—and still risk inadequate supply as industrial needs increased, or

2) plan a separate industrial system, with pumping, treatment, distribution and expansion potential.

Of the two, the latter plan, though more costly in immediate capital investment as a result of large-size transmission mains, treatment plant area requirements and building expenditures, proved by far the more practicable long-range plan.

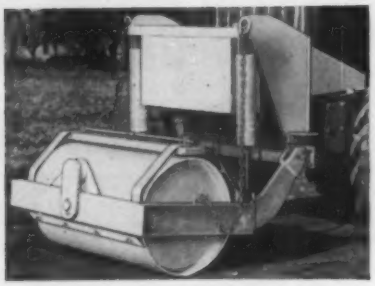
The second plan was carried out

Eight rapid sand filters are located on the top floor of the filtration building. Along the wall at left are offices and laboratories.

Laval centrifugal pump was added

tank, connected by a "T" to the dis-

MARTIN GRADERROLLER saves thousands of dollars in initial cost of roller



Contractors and public road builders are making substantial savings by equipping their motor graders for double duty with the Martin GraderrolleR; now cost retractable roller fits behind the engine where it can be instantly lowered to serve as an all-purpose heavy-duty roller, or raised to free the grader for other duties.

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and residents of Savannah have never had reason to regret their decision. The artesian system has continued to supply the needs of the domestic users and the industrial system has allowed development of manufacturing and commercial plant facilities for all applicants.

Since the construction of the original pumping plant, treatment works and distribution system in 1948, $125,000,000 worth of industrial plant has been added to the city's tax rolls. Much of it settled in Savannah because an unlimited supply of highest quality water was guaranteed.

Under the original $4,800,000 construction program, plant facilities provided a maximum capacity of 40 mgd. It consisted of a raw water pumping station located on Abercorn Creek, a tributary of the Savannah River, eight miles north of the treatment plant site; the treatment plant, including chemical building, filtration building, sedimentation basins and storage facilities; as well as the 48-inch distribution mains that supply the industries.

By 1957, in order to meet increased demands and to guarantee a reserve potential for the future, the water department had good reason to re-endorse the original decision for a separate industrial supply. If the first plan had been instrumented, the high cost of expansion of the artesian system would have provided only a stop-gap measure and the industrial system would have had to be built anyhow.

As things turned out, all that was necessary to supply needed water was a comparatively inexpensive $440,000 program of increasing facilities at the Cherokee Hill Plant and the Abercorn Creek Station.

In order to increase maximum capacity of the facility from 40 mgd to a potential of 50 mgd, the city started by installing four DeLaval booster pumps in series with the five already at the raw-water pumping plant. These nine pumps are operated by means of telemetering and automatic controls from the filter plant.

To take care of increased volume entering the treatment plant, an additional filter was placed into operation and the capacity of the settling tanks was increased. One new 15-mgd, Westinghouse-powered De-

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Laval centrifugal pump was added to the service-distribution gallery.

Treatment in the expanded plant is literally the same as that performed in the original plant. Abercorn Creek water passes through bar screens into the DeLaval centrifugal pumps which convey it over the 8 miles of swamp and highland to the treatment plant.

Treatment

The plant receives raw creek water, which is high in bacteria, suspended solids, color and sediment, through the chemical building basement. It is passed through a 48-inch x 24-inch Builders-Providence, Inc. venturi meter. At the discharge end of the venturi are the connections for the addition of chlorine, lime and alum. Two Omega alum feeders regulate the gravity flow of liquid alum from tanks within the plant. These tanks are filled from a large alum storage tank outside the chemical building.

There also are two Omega gravometric lime feeders supplied from hoppers located on the third floor of the building, where hydrated lime is stored in 50-lb. sacks. It is trough-mixed and fed to the system in slurry form. The system uses four Wallace & Tiernan chlorinators supplied from 1-ton drums. All chemicals used for treatment are purchased in carload lots and stored on the premises.

Filtration

Dosed water is passed into three flash mixers, on into agitated flocculating tanks and then flows through the settling tanks to the filtration building. Sedimentation retention time is four hours during normal operation.

The filtration building provides eight rapid sand filters, seven of which are in operation under normal conditions. Each filter is controlled at an individual panel equipped with instruments and hydraulic controls manufactured by the Roberts Filter Mfg. Co. and the Simplex Mfg. Co.

Service pumps that control flow of finished water to distribution mains are Westinghouse - powered DeLaval centrifugal pumps.

The plant provides 16 million gallons of finished water storage. A 2-million-gallon, grade-level, prestressed concrete tank, located near the front of the filtration building, is terraced and planted. In the rear of the grounds are a 4-million-gallon and a 10-million-gallon steel tank, connected by a "T" to the distribution main. These two finished water storage tanks float on the line.

Inside the main building is a glass covered viewing well where finished water can be observed. At the bottom of this well, beneath some 15 feet of water, a tile mosaic of the seal of the City of Savannah is brilliantly legible. Substantiating the purity of the water as it appears in the viewing well is the chemical and bacteriological laboratory where constant control and analysis of the finished water is maintained.

There have been only a few times when the artesian supply to downtown Savannah has had to be supplemented by water from the Cherokee Hill Filtration Plant, but when these occasions have presented themselves, officials have had no reservations as to the quality of water they were mixing with the artesian supply. Perhaps just as significant is the assurance that—as a result of water planning and a right decision in the past—the city will continue to be supplied with all the quality water it needs for residents as well as industry.

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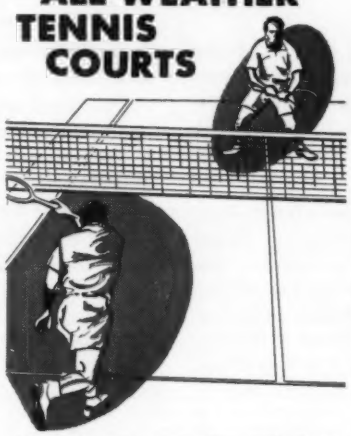

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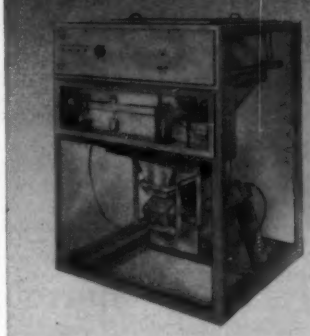

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ZONING AND PLANNING NOTES

Redevelopment—Blighted Vacant Land

NEW JERSEY. *Wilson* v. *City of Long Branch*, 142 Atlantic (2d) 837 (Supreme (highest) Court, June 16, 1958).

This case involved the proposed redevelopment of a 100-acre rundown waterfront area in Long Branch, including both dilapidated residential construction (primarily summer residences) and blighted vacant land (the latter being about 30% of the total area).

In challenging the proposed proceedings, the property owners argued *inter alia* that the municipal determination of blight in itself constituted an actual taking of property (prior to condemnation) by lowering property values, and that there were no sufficient standards in the act to govern the determination of blight.

In the opinion, the Court first restated the familiar argument in favor of redevelopment.

> "Community redevelopment is a modern facet of municipal government. Soundly planned redevelopment can make the difference between continued stagnation and decline and a resurgence of healthy growth. It provides the means of removing the decadent effect of slums and blight on neighboring property values, of opening up new areas for residence and industry. In recent years, recognition has grown that governing bodies must either plan for the development or redevelopment of urban areas or permit them to become more congested, deteriorated, obsolescent, unhealthy, stagnant, inefficient and costly. As a resut, at least 38 states now have remedial legislation similar to that of New Jersey. Even if there were no express constitutional sanctions for redevelopment of the type described in our statute, ample authority to do so might be found in the well of police power. Manifestly, the purposes to be served are intimately related to the public health, welfare and safety and so are consonant with both Federal and State Constitutions."

Turning to the question at hand, the Court held that, even if damage resulted from a municipal determination of blight, this was not compensable.

> "But this is not a taking in the constitutional sense. It is akin to the result which flows from municipal zoning. If some diminution in market value can be said to follow from a finding of blight inspired by the valid exercise of police power, it is *damnum absque injuria*."

It was also held that there was no *constitutional* requirement of a hearing of the issue of blight.

After dealing with various other contentions, the Court held that the definition in the act of a blighted area was reasonably complete, and that a redevelopment project could include the taking of some good buildings.

Permitted Uses In Manufacturing Districts—Freight Storage Yard and Gypsum Plant—Mining In Agricultural District—Permissive Zoning

MICHIGAN. *Gray* v. *Grant Trunk Western Railroad*, 9 North Western (2d) 828 (Supreme (highest) Court, September 10, 1958).

MICHIGAN. *Certain-Teed Products* v. *Paris Township*, 88 North Western 705 (Supreme Court, March 5, 1958).

In the first (railroad) case, changed methods of automobile manufacturing had resulted in increased requirements for freight service, and as a result a new freight switching yard was needed in Pontiac. Such a yard was proposed in an area zoned Manufacturing 1, with (among other conditions) provision for screening, for no operations on Sundays, and for the use of diesel power only. The proposed yard was challenged as a violation of the zoning ordinance and also as a nuisance. The residence districts in the Pontiac zoning ordinance were permissive in form, and permitted railroad rights-of-way, passenger stations, etc., but the manufacturing districts were prohibitory in form, with no reference to railroad facilities at all. In such cases, a large number of uses necessarily fall between the uses permitted in certain districts and those prohibited in the latter districts, and therefore—while such uses are in fact automatically permitted in the first district with prohibitory regulations—they are a little hard to find; and this was true of freight switching yards in this instance.

In the opinion, the Court held that the proposed yard was not a nuisance, and further that, since the freight yard was not a prohibited use in Manufacturing 1 districts, it was permitted there. It was also noted that the existing freight yard was zoned Manufacturing 1.

In the Paris Township case, a large deposit of gypsum rock was located 240 feet below ground in a rural township, seven miles from Grand Rapids and in the path of its suburban expansion. Options for mining purposes on farm land zoned for agricultural use were obtained by a gypsum company, and it was also proposed to build a processing plant nearby on a tract extending back 1,250 feet from the Chesapeake and Ohio railroad tracks. The local zoning ordinance allocated all land within 500 feet of the area for industrial use, with special provisions (a) to authorize certain types of plants (including gypsum plants) by special permit under stated conditions, and (b) to extend the area up to an additional 1,000 feet also in effect by special permit. In both cases the permits would be granted by the township board, with provision for review by the local zoning board of appeals. After a considerable public controversy, the Town refused both special permits for the proposed manufacturing operations, and also refused to approve the proposed mining. A great deal of evidence was submitted, most of it conflicting, on the amount of dust likely to be produced by gypsum manufacture, and on the possibility of damage to residential land by surface subsidence as a result of underground mining; and the Township also argued that the industrial traffic would injure its future development. On behalf of the Company, it was argued that 250 new jobs would be created by the proposed operations, and that the cost of transporting gypsum rock made it economically impossible to mine the rock there and transport it to another manufacturing area.

In the opinion, the Court first upheld the manufacturing zoning along both sides of the railroad right-of-way, and the provisions in the ordinance authorizing special permits, both for listed uses (including gypsum manufacture) within the regular manufacturing district, and for additional depth. On the denial of the Company's applications, the Court felt that this was "largely determined by the board under the impact of a completely committed audience reaction," and that the Company had "received the form, but not the fact, of administrative due process." There were no findings of fact indicating how the proposed plant would fail to conform to the standards set forth in the ordinance, and the Court felt that the denial was based upon a doubt whether the control of industrial nuisances could be effective, and that this doubt had not been properly documented. It was also pointed out that under the ordinance an appeal could have been—but was not—heard by the local zoning board of appeals. The denial was therefore held arbitrary and invalid. However, on the special permit to extend the depth of the industrial district, the refusal to approve such an extension was held proper, since "under the ordinance, this extension is not a matter of right for any industrial use." This reference highlights the assumption that the company had practically a right to get the other type of special permit, i.e., for a gypsum plant in a Manufacturing 1 district. This in turn shifts the burden of proof to the Township, which was hardly in a position to prove that certain machinery to reduce dust would *not* work at some future time. This is a marked departure from the forward-looking approach to constitutional judgments on zoning set forth in *Robinson* v. *Bloomfield Hills*, 86 North Western (2d) 146 (1957).

As for the question on sub-surface mining, the Court held that, since mining was not specifically permitted under this permissive ordinance, it was thereby intended to be excluded. The Court added that, to the extent that gypsum could be mined without any interference to surface activity, a prohibition on sub-surface mining would be unconstitutional, and that this could be handled by attaching suitable conditions under judicial supervision. The minor structures needed on the surface in the agricultural district were dismissed as unimportant, and, in any event, as proper subject for variances. Finally, the Court's directive to approve all the proposed operations was made conditional upon good performance.

Four judges, concurring in part and dissenting in part, felt that "It is now time to cut through the maze of conflicting and gypsum-dusted contentions," and pointed out that the real question was which side should assume the risk of failure, in case the manufacturing and mining processes did not reach the promised high level of performance. It was further argued—following traditional nuisance law—that the Company must proceed at its own risk in this regard.

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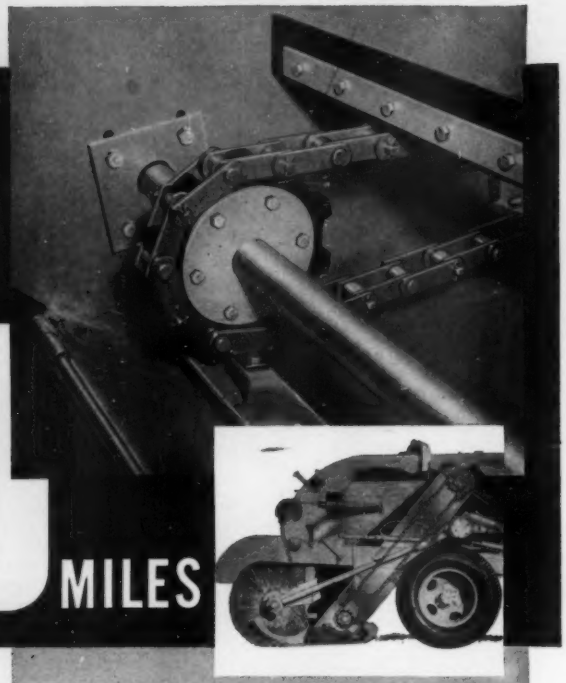

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LEGAL NOTES AND DECISIONS

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Annexation—
Corridor Annexation Denied

Where statute provides for annexation territory "contiguous" to municipality even if same were dedicated for highway, held contiguous here means adjacent to and parallel to existing municipal limits. *People* v. *Village of Streamwood*, 155 N.W.2d 635 (Ill., Jan. 23, 1959).

Boundaries—
Change By Legislature Valid

Where legislature redefined city boundaries effectively removing almost all qualified Negro voters, held that regardless of motive the legislature was validly acting within its powers. *Gomillion* v. *Lightfoot*, 167 F. Supp. 405 (D., Ala., Oct. 29, 1958).

City Auditorium—
Construction of Public Purpose

In action contesting construction of city auditorium, held that where, without such structure city would have no indoor facility for public gatherings of 5,000 people and might lose its stature as great convention city, construction had public purpose. *City of Boston* v. *Merchants National Bank of Boston*, 154 N.E.2d 702 (Mass., Dec. 18, 1958).

Condemnation—Partial Taking—
Lessee's Damages

In eminent domain proceeding, held lessee's award to be deducted from landowner's damages based on difference between market value of property before partial taking and market value after taking. *In re Public Parking Field—Port Richmond*, 181 N.Y.S.2d 446 (N. Y. Sup. Ct., Richmond Cty., Nov. 18, 1958).

Drunken Driving—Ordinance
Not In Conflict With Statute

Statute providing that reckless operation of vehicle is operation in criminally negligent manner and city ordinance providing that it shall include driving while under influence of intoxicating liquor, held not inconsistent. *City of Shreveport* v. *Baylock*, 107 So.2d 419 (La., Dec. 15, 1958).

Hospital—Fall From Bed—
City Not Liable

In action for damages resulting to patient in fall from bed in city hospital, held that fact that bed had no rails would not make city liable. *Marsh* v. *City of St. Petersburg*, 106 So.2d 567 (Fla., App., Nov. 7, 1958)

Licenses—Beauty Operator—
No State Pre-Emption

In proceeding where petitioner claimed that municipal ordinance governing beauty shop operator did not apply to one holding state license, held state did not preempt field, and city may require additional license and set other regulations. *Department of Licenses and Inspections* v. *Weber*, 147 A.2d 326 (Pa., Jan. 12, 1959).

Licenses—
TV In Restaurant Is Entertainment

Where ordinance required license for providing entertainment at eating or drinking establishments, held applicable where entertainment is supplied by means of TV, radio or juke-box. *Mosey Cafe* v. *Mayor of Boston*, 154 N.E.2d 587 and 591 (Mass., Dec. 5, 1958).

Off-Street Parking Lots—
Ordinance Requiring Invalid

Where zoning ordinance required builders of certain type buildings to furnish parking facilities for commercial vehicles and visitors to their tenants, held ordinance invalid as lacking sufficient standards. *State* v. *City of Lyndhurst*, 154 N.E.2d 435 (Ohio, Nov. 26, 1958)

Parks—Deed By Subdivider Valid

In action by developer to set aside deed of two acres to city for park purposes, held deed valid since not executed under duress as claimed. *Gregory Manor* v. *Clifton*, 147 A.2d 595 (N. J. Super., App. Civ., Jan. 13, 1959).

Police Chief Not Liable
For Officer's False Arrest

In action against city police chief for false arrest committed by subordinate, held chief not liable in absence of showing that he took part in or ratified the trespass. *Giroux* v. *Murphy*, 147 A.2d 465 (R. I., Jan. 9, 1959).

Slum Clearance—
Condemnation of Church Upheld

In suit against Urban Redevelopment Authority by congregation of church located in blighted area, held congregation had no standing. *St. Peter's Roman Cath. Par.* v. *Urban Redevelop. Auth.*, 146 A.2d 724 (Pa., Dec. 4, 1958).

Smoke Control—
City May Regulate Ships In Port

Held, that smoke abatement ordinance as applied to steamship in port of municipality was not in conflict with congressional legislation pertaining to inspection of vessels or air pollution and not regulation of interstate commerce. *Huron Portland Cement* v. *City of Detroit*, 93 N.W.2d 888 (Mich., Jan. 12, 1959).

Swimming Pools—
City Regulation of Private Pools

In action to invalidate ordinance requiring enclosure of private swimming pools by fence of 4 to 10 feet in height, held issue whether ordinance void due to lack of standards precluded summary judgment for city. *Mason* v. *Mayor and Council of Borough of Hillsdale*, 147 A.2d 604 (N. J. Super., Jan. 6, 1959).

Taxation—
"Metropolitan Authority" Limited

"Metropolitan Authority" covering five counties and existing for purposes of planning and constructing parks and highways is not permitted to increase tax limitation as is "Municipal Corporation." *Morse* v. *Board of Supervisors of Wayne County*, 93 N.W.2d 886 (Mich., Jan. 12, 1959).

Tax Exemption—Non-Profit Firm
Must Submit Membership List

Ordinance requiring non-profit organizations to submit membership list as condition for claiming immunity from taxation, held not unconstitutional where uniformly applied. *Bates* v. *City of Little Rock*, 319 S.W.2d 37 (Dec. 22, 1958).

Tax Sale to Alderman Upheld

Even though member of board of aldermen purchased property for his brother at tax sale, held that procedure was not illegal. *Rayborn* v. *Burt*, 107 So.2d 737 (Miss., Jan. 5, 1959).

Tort Liability—Injury at
Baseball Game—County Not Liable

In action under "safe-place statute" by spectator for injuries sustained when hit by foul ball at game in county stadium, held where plaintiff was alerted that ball was coming her way but took no precaution county not liable. *Powless* v. *Milwaukee County*, 94 N.W.2d 187 (Wis., Jan. 2, 1959).

Traffic—City Speed Limit
On State Highway Invalid

Where State Highway Commission did not approve ordinance which altered existing speed limit on primary state highway, held ordinance invalid and speeding conviction dismissed. *City of Airway Heights* v. *Schroeder*, 335 P.2d 578 (Wash., Feb. 19, 1959).

Utilities—
City In Competition With Private Valid

In action by utility distributing electricity and paying taxes in municipality to enjoin town from erecting system, held town had a right to construct the system. *Mississippi Power and Light Co.* v. *Town of Coldwater*, 168 F. Supp. 463 (D. Miss., June 9, 1958).

Utilities—
Compensation For Relocation Invalid

Statute providing for state to reimburse utilities for relocation of their facilities located on publicly-owned right of way, held invalid as expenditure for other than public purpose. *State* v. *Southern Bell Telephone and Telegraph Co.*, 319 S.W.2d 90 (Tenn., Sept. 1, 1958).

Utility Relocation—
Highways—State Liable For

In action concerning payment for relocation of utility facilities necessitated by improvement to interstate highway, statute making state liable upheld. *State* v. *City of Dallas*, 319 S.W.2d 767 (Tex. Civ. App., Dec. 17, 1958).

Water Rates—
Higher Rates to Partial Users Invalid

In suit against city as operator of water and electric system for charging increased rate for water service to residents who were not also taking electric service, held such rate structure was discriminatory and invalid. *Hicks* v. *City of Monroe Utilities Commission*, 108 So.2d 127 (La. App., Nov. 25, 1958).

City Can Require Houses to Be Painted

Paint or other protective coating can be required by a city housing code, according to a recent decision of a Wisconsin Circuit Court.

Milwaukee's housing code was upheld in a case against the owner of a building that had not been painted for 50 years, the American Municipal Association has learned.

The court held that "the basic principles of sanitation require some form of protective coating to a building to guard against decay." This is a health measure, not an aesthetic one, the judge said.

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RECENT CITY MANAGER APPOINTMENTS

Clarence E. Robinson, Orrington, Maine | **Albert R. Pierce, Avondale, Ariz.** | **George R. Schrader, Mesquite, Texas** | **R. M. Henneberger, Rangely, Colo.** | **H. W. Heideman, Imlay City, Mich.** | **William J. Veeder, Charlotte, N. C.**

CHARLES P. BARRIER, administrative assistant at Tallahassee, Fla., has been appointed as the first manager of LaFayette, Ga.

ARTHUR BERQUIST, manager at Roosevelt Park, Mich., for the past five years was recently appointed the new manager of Manistee, Mich., succeeding James R. Burch, now manager at Cadillac, Mich.

G. R. BIXLER, clerk of the city of Nichols Hills, Okla., for 25 years, has been appointed the first manager of that city.

ROBERT F. BOOS, assistant to the manager of Las Vegas, Nev., has been appointed manager of Laramie, Wyo., succeeding H. J. Warburton, now manager of Roseburg, Ore. Mr. Boos was previously assistant manager at Wichita, Kansas.

CLAUDE A. BRANSFORD, town clerk and treasurer of Winthrop, Me., was recently appointed as the first manager of Boothbay, Me., succeeding Clarence J. Buckley.

EUGENE L. BUMPASS, chief of police of Altus, Okla., was recently appointed as the first manager of Village, Okla.

LEONARD BURT is the new manager of Chandler, Okla., succeeding Orville Hunt, who has resigned to enter private business.

J. A. CURRIE, comptroller of the city of Kitimat, B. C., Canada, was recently appointed as the manager of that city, succeeding C. McC. Henderson, now manager of the District of North Vancouver, B. C., Canada.

ARTHUR H. CURTIS, manager of Barre Town, Vt., has been recently appointed the first manager of Monroeville, Pa. Mr. Curtis has served as manager of Mt. Desert, Vt.

L. JACK DAVIS, director of finance of Grand Prairie, Tex., has been appointed the new manager of Gainesville, Tex., succeeding Homer B. Bly, now manager at Denton, Tex. Mr. Davis has served as personnel director and assistant director of finance at Grand Prairie and administrative aide at Lubbock, Tex.

JOHN E. DEVER, manager of Two Rivers, Wis. for the past seven years, has been appointed as the first manager of Decatur, Ill. Mr. Dever was previously administrative assistant at Eau Claire, Wis.

CLAUDE DUMOND is the new manager at Eagle Lake, Me., succeeding James Martin. Mr. Dumond also serves as manager at New Canada (Soldier Pond), Me.

HAL L. EVERETT, manager at Truth or Consequences, N. M., for the past two years, has recently been appointed as the first manager of Aztec, N. M. Mr. Everett was previously manager at Colby and Hutchinson, Kan.

ROBERT D. FARLEY, JR., administrative assistant at Corunna, Mich., is the new manager of Hudson, Mich., succeeding William E. Besuden, who now is a staff member of ICMA.

JAMES T. GARRARD, city clerk of Beaumont, Tex., is the new manager of that city succeeding Mrs. Willie J. Brockman, who has retired.

LAWRENCE GISH, manager of Marceline, Mo., was recently appointed as the manager of Arkansas City, Kan., succeeding A. L. Short.

C. J. GRIGGS, manager at Mesquite, Tex., for the past six years, is the new manager of Wichita Falls, Tex., succeeding H. A. Thomason who is going into private consulting work.

LOREN E. HASKELL, has been appointed the new manager of Oxford, Me., succeeding Raymond F. Parsons.

DAVE HASSE, acting city manager of Troy, Mich., has been appointed the manager of that city, succeeding C. Randolph Lukens, who is the new manager of Chillicothe, Ohio.

HAROLD W. HEIDEMAN, manager of Manistique, Mich., from 1949 to 1954, has been appointed manager of Imlay City, Mich., succeeding David E. Firestone who is the new manager of Sylvan Lake, Mich.

RICHARD M. HENNEBERGER, administrative assistant at Ferguson, Mo., is the new manager of Rangeley, Colo.

T. R. MCCASLING, manager of Waurika, Okla. for the past four years, has been appointed the new manager of Chickasha, Okla., succeeding Harry B. McDowell, who resigned to enter private business. Mr. McCasling has served as manager of Burkburnett, Tex., and Pauls Valley and Henryetta, Okla.

ALBERT R. PIERCE, administrative assistant to the Public Works Director, Phoenix, Ariz., was recently appointed as the first manager of Avondale, Ariz.

EDWARD H. PREBLE, was recently appointed as the new manager of Bay Harbor Islands, Fla., succeeding David R. Topp who resigned.

CLARENCE E. ROBINSON, manager of Belle Glade, Fla., from 1955 to 1958, was recently appointed manager of Orrington, Me., succeeding Emery S. Pinkham. Mr. Robinson was formerly the manager at Ashland, N. H., and Clinton and Fairfield, Me.

GEORGE R. SCHRADER, manager at Ennis, Tex., for the past two years, is the new manager at Mesquite, Tex., succeeding C. J. Griggs, now manager at Wichita Falls, Tex. Mr. Schrader has served as administrative assistant and planner at San Angelo, Tex.

DEANE SEEGER, JR., administrative analyst and planner at West Covina, Calif., was recently appointed the first city administrator of Union City, Calif., a newly incorporated city.

KENNETH E. SMITH, administrative aide to the manager of Waco, Tex., has been appointed the manager of Eagle Lake, Tex., succeeding James W. Dodson, now manager of West Columbia, Tex.

HUGH N. THOMPSON, manager at Winnsboro, S. C., for the past four years, was recently appointed the first manager of Cayce, S. C.

WILLIAM J. VEEDER, manager at Fort Lauderdale, Fla., for the past four years, is the new manager at Charlotte, N. C., succeeding Henry A. Yancey, who has retired. Mr. Veeder was previously on the staff of Public Personnel Association and assistant to the manager of Fort Lauderdale, Fla.

JOHN WEICHSEL, administrative assistant to the manager at Kalamazoo, Mich., has been appointed the first manager of Ellenville, N. Y.

O. WENDELL WHITE, Syracuse, N. Y., has been appointed the first manager of Grundy, Va.

GLEN P. WILLARDSON, assistant chief administrative officer of Baldwin Park, Calif., is the new manager at Clearfield, Utah, succeeding R. Clay Allred.

ROBERT S. YORK, is the new manager of Brownville, Me., succeeding Ernest L. Sevey, now manager at Farmington, Me.

GEORGE L. YOUNG, acting city manager of South Berwick, Me., was recently appointed as the manager of Cavendish, Vt., succeeding Sidney Smith, who is the new manager of Ludlow, Vt. Mr. Young, a retired lieutenant commander, has served 25 years in the Navy.

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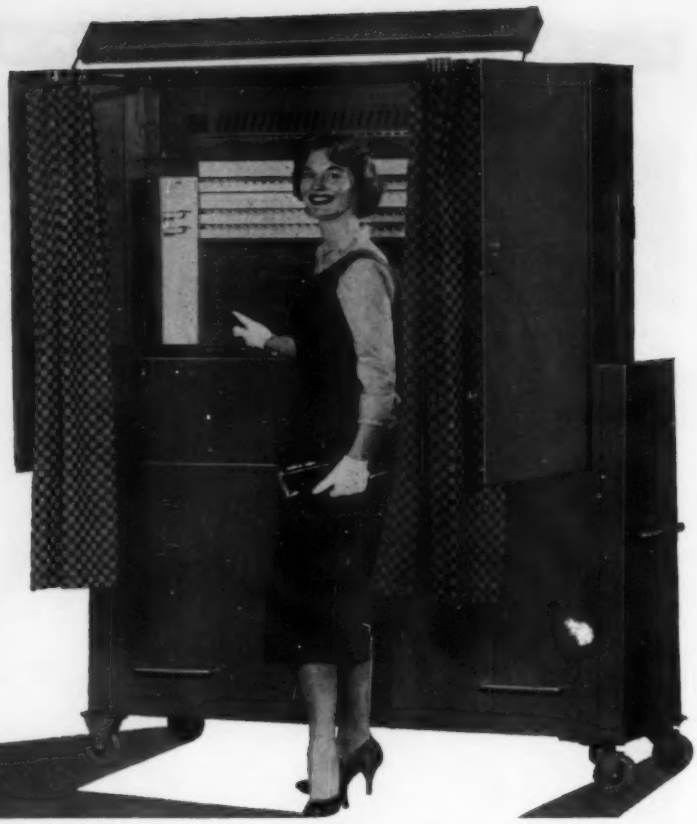

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CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

Aug. 12-14—University Park, Pa.
PENNSYLVANIA SEWAGE & INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Pennsylvania State University). Sec.-Treas., J. R. Harvey, 996 South Main St., Meadville, Pa.

Aug. 17-21—Detroit, Mich.
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Hotel Statler), Sec.-Treas., L. C. Chadwick, 1827 Neal Ave., Columbus, Ohio.

Aug. 27—Springfield, Ill.
ILLINOIS WATER SUPPLY CONFERENCE. Annual Meeting (Abraham Lincoln & St. Nicholas Hotels). For information, address J. G. Ronchetto, Secretary, Water Resources Committee of the Illinois State Chamber of Commerce, 20 North Wacker Drive, Chicago 6, Ill.

Aug. 29-Sept. 3—Weisbaden, Germany
INTERNATIONAL INSTITUTE OF ADMINISTRATIVE SCIENCES. Annual Congress. For information, address Robert Matteson, American Society for Public Administration, 6042 S. Kimbark Ave., Chicago, Ill.

Aug. 31-Sept. 3—Grand Rapids, Mich.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pantland Hotel). Gen. Mgr., B. Richter Townsend, 232 Madison Ave., New York, N. Y.

Aug. 31-Sept. 4—Milwaukee, Wis.
NATIONAL MUNICIPAL CEMETERY CONFERENCE. Annual Conference (Schroeder Hotel). Natl. Chairman, Vernon J. Birkhimer, Chief, Bureau of Cemeteries, 4809 W. Franklin St., Richmond 26, Va.

Sept. 2-4—Huron, S. D.
SOUTH DAKOTA WATER & SEWAGE WORKS CONFERENCE. Annual Meeting (Marvin-Hughitt Hotel). Exec. Sec., Don C. Kalda, State Board of Health, Pierre, S. D.

Sept. 6-9—Perugia, Italy
INTERNATIONAL FEDERATION FOR HOUSING AND PLANNING. Annual Meeting. For information, address Dennis O'Harrow, American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.

Sept. 7-11—San Francisco, Calif.
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Hotels Fairmont and Mark Hopkins). Man. Dir., A. D. Hinckley, 1860 Broadway, New York, N. Y.

Sept. 8-10—Moran, Wyo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (Jackson Lake Lodge). Sec., V. A. Vaseen, 833 23rd St., Denver 2, Colo.

Sept. 9-11—Atlanta, Ga.
GEORGIA WATER & SEWAGE ASSOCIATION. Annual Meeting (Georgia Tech.). Sec-Treas., A. T. Storey, 1 Boyd St. N.W., Atlanta 13, Ga.

Sept. 9-11—Liverpool, Nova Scotia
AMERICAN WATER WORKS ASSOCIATION—Canadian Section, Maritime Branch. Annual Meeting (White Point Beach Lodge). Sec., J. D. Kline, General Manager, Public Service Commission, Halifax, Nova Scotia.

Sept. 9-11—Milwaukee, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting (Hotel Schroeder). Exec. Sec., Harry Breimeister, 405 City Hall, Milwaukee 2, Wis.

Sept. 10-12—Mackinac Island, Mich.
MICHIGAN MUNICIPAL LEAGUE. Annual Meeting (Grand Hotel). Exec. Dir., John H. Huss, 205 State Street, Ann Arbor, Mich.

Sept. 10-12—Salt Lake City, Utah
UTAH MUNICIPAL LEAGUE. Annual Meeting (Newhouse Hotel), Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

Sept. 13-14—Huntsville, Ala.
ALABAMA LEAGUE OF MUNICIPALITIES. Annual Meeting (Hotel Russell Erskine). Exec. Dir., E. E. Reid, Alabama League of Municipalities, Montgomery, Ala.

Sept. 13-17—Montreal, Canada
COMMUNITY PLANNING ASSOCIATION OF CANADA. National Planning Conference (Sheraton-Mount Royal Hotel). Sec.-Treas., Miss J. M. Laventure, Community Planning Association of Canada, 77 MacLaren St., Ottawa, Canada.

Sept. 13-17—New York, N. Y.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Commodore Hotel). Exec. Sec., David M. Baldwin, 211 Stratchona Hall, New Haven 11, Conn.

Sept. 14-16—Lexington, Ky.
AMERICAN WATER WORKS ASSOCIATION—Kentucky-Tennessee Section. Annual Meeting (Lafayette Hotel). Sec.-Treas., J. Wiley Finney, Jr., 553 S. Limestone St., Lexington, Ky.

Sept. 16-18—Akron, Ohio
OHIO MUNICIPAL LEAGUE. Annual Conference and Products Exhibit (Mayflower Hotel). Exec. Dir., John P. Coleman, 60 E. Broad St., Columbus 15, Ohio.

Sept. 16-18—Minneapolis, Minn.
AMERICAN WATER WORKS ASSOCIATION—North Central Section. Annual Meeting (Hotel Pick-Nicollet). Sec.-Treas., L. N. Thompson, St. Paul Water Department, 216 City Hall, St. Paul 2, Minn.

Sept. 16-18—Upper Saranac Lk., N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Fall Meeting (Saranac Inn). Sec., Kimball Blanchard, Neptune Meter Co., N. Y. Branch Sales Office, 2222 Jackson Ave., Long Island City, N. Y.

Sept. 16-18—Yankton, S. D.
SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Meeting (Charles Guerny Hotel). Exec. Dir., J. G. Barger, P. O. Box 938, Aberdeen, S. D.

Sept. 20-22—Dallas, Texas
TEXAS MUNICIPAL LEAGUE. Annual Meeting (Baker Hotel). Exec. Dir., Steve Matthews, 402 Vaughn Bldg., Austin 1, Texas.

Sept. 20-22—Old Point Comfort, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Meeting (Chamberlin Hotel). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

Sept. 20-23—Lake Placid, N. Y.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Lake Placid Club). Sec., Joseph C. Knox, 73 Tremont St., Room 549, Boston 8, Mass.

Sept. 20-23—Seattle, Wash.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Olympic Hotel). Exec. Dir., Robert D. Bugher, 1313 E. 60th St., Chicago 37, Ill.

Sept. 20-24—Minneapolis, Minn.
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Leamington Hotel). Genl. Sec., A. W. Baker, 355 Lexington Ave., New York 17, N. Y.

Sept. 20-24—Philadelphia, Pa.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Benjamin Franklin Hotel). Exec. Sec., Alfred B. LaGasse, American Institute of Park Executives, Ogelbay Park, Wheeling, W. Va.

Sept. 23-25—Corbin, Ky.
KENTUCKY MUNICIPAL LEAGUE. Annual Meeting (Cumberland Falls State Park). Exec. Sec., Carl B. Wachs, Room 64, McVey Hall, University of Kentucky, Lexington, Ky.

Sept. 23-25—Grand Forks, N. D.
NORTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Meeting (Dacotah Hotel). Sec.-Treas., W. Van Heuvelen, c/o State Department of Health, Bismarck, N. D.

Sept. 23-25—Saginaw, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Bancroft Hotel). Exec. Sec., T. L. Vander Velde, Chief, Section of Water Supply, Michigan Department of Health, Lansing 4, Mich.

Sept. 26-Oct. 1—New York, N. Y.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel Statler). Exec. Sec., Leroy W. Wike, 616 Mills Bldg., Washington 6, D. C.

Sept. 27-29—Asheville, N. C.
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Meeting (Battery Park Hotel). Exec. Dir., Mrs. Davetta Steed, 1009 Raleigh Bldg., Raleigh, N. C.

Sept. 27-29—Hutchinson, Kans.
LEAGUE OF KANSAS MUNICIPALITIES. Annual Convention (Baker Hotel). Exec. Dir., Allen E. Pritchard, Jr., 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 27-29—Kansas City, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section (President Hotel). Sec., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

***Sept. 28-30—Jefferson City, Mo.**
MISSOURI MUNICIPAL LEAGUE. Annual Convention (Hotel Governor). Exec. Dir., Bruce J. Carl, 2121 Guitar Bldg., Columbia, Mo.

Sept. 28-30—Toronto, Canada
CANADIAN INSTITUTE OF SEWAGE AND SANITATION. Annual Meeting (Royal York Hotel). Sec.-Treas., Dr. A. E. Berry, 72, Grenville St., Toronto, Canada.

Sept 28-Oct. 2—Chicago, Ill.
NATIONAL RECREATION CONGRESS. Annual Meeting (Hotel Morrison). Sec.-Treas., Willard B. Stone, 8 W. 8th St., New York, N. Y.

Oct. 4-7—Pittsburgh, Pa.
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Convention (Penn-Sheraton Hotel). Sec., Dr. Charles F. LeeDecker, 506 State Street Bldg., Harrisburg, Pa.

***Oct. 7—New York, N. Y.**
REGIONAL PLAN ASSOCIATION. Thirtieth Anniversary Conference (Hotel Roosevelt). Exec. Dir., John Kieth, Regional Plan Association, 230 W. 41st St., New York 36, N. Y.

***Oct. 7-9—Baltimore, Md.**
AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Meeting (Sheraton Belvedere Hotel). Sec., C. J. Lauter, 6955 33rd St., N.W., Washington 15, D. C.

(Continued on page 193)

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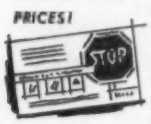

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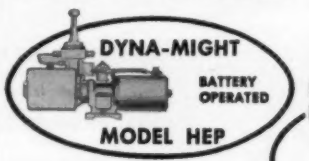

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(Continued from page 191)

***Oct. 11-13—Dickinson, N. D.**
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Meeting (Ray Hotel). Exec. Sec., Mrs. H. C. McCreery, 408½ Main Avenue, Bismarck, N. D.

Oct. 11-14—Cleveland, Ohio
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Products Exhibit (Hotel Cleveland-Sheraton). Gen. Chairman, Leo Weil, Commissioner of Purchases and Supplies, Cleveland, Ohio.

Oct. 11-14—Philadelphia, Pa.
NATIONAL ASSOCIATION OF ASSESSMENT OFFICERS. Annual Convention (Sheraton Hotel). Exec. Sec., Albert W. Noonan, 1313 E. 60th St., Chicago 37, N. Y.

Oct. 11-14—Pittsburgh, Pa.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Convention (Penn Sheraton Hotel). General Counsel, Charles S. Rhyne, 839 17th St., Washington 6, D. C.

Oct. 11-15—Boston, Mass.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Statler Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

Oct. 11-15—Dallas, Texas
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Convention (Memorial Auditorium). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N. W., Washington 16, D. C.

***Oct. 13-16—Atlantic City, N. J.**
PENNSYLVANIA WATER WORKS ASSOCIATION—Annual Meeting (Chalfonte-Haddon Hall). Sec., David Dunlap, 2609 N. Second St., Harrisburg, Pa.

Oct. 13-16—Houston, Texas
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Meeting (Shamrock Hotel). Sec., Elliott R. Jackson, Municipal Auditorium, Atlanta, Ga.

***Oct. 14-16—Des Moines, Iowa**
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Hotel Fort Des Moines). Sec.-Treas., J. J. Hail, Dubuque, Iowa.

***Oct. 14-16—Green Bay, Wis.**
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Meeting (Hotel Northland). Exec. Dir., Ed Johnson, 30 E. Johnson St., Madison 3, Wis.

***Oct. 18-20—Portland, Ore.**
LEAGUE OF OREGON CITIES—Annual Meeting. Exec. Sec., Herman Kehrli, P. O. Box 5177, Eugene, Ore.

Oct. 18-21—Cincinnati, Ohio
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Convention (Netherland-Hilton Hotel). Exec Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 18-21—New Orleans, La.**
AMERICAN WATER WORKS ASSOCIATION—Mississippi-Alabama Section jointly with the Southwest Section. Annual Meeting (Roosevelt Hotel). Sec.-Treas., Ernest Bryan, McWane Cast Iron Pipe Co., Box 2601, Birmingham, Ala.

***Oct. 18-21—San Francisco, Calif.**
LEAGUE OF CALIFORNIA CITIES. Annual Meeting (St. Francis and Palace Hotels). Exec. Dir., Richard Carpenter, Hotel Claremont Bldg., Berkeley, Calif.

Oct. 18-23—Washington, D. C.
AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Convention (Statler Hotel). Exec. Sec., William H. Wisely, 23 W. 39th St., New York 18, N. Y.

Oct. 19-22—Las Vegas, Nev.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Convention (Stardust Hotel). Exec. Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

Oct. 19-23—Atlantic City, N. J.
AMERICAN PUBLIC HEALTH ASSOCIATION Annual Convention (Convention Hall) Exec. Dir., Berwyn F. Mattison, M.D., 1790 Broadway, New York 19, N. Y.

***Oct. 22-24—Atlantic City, N. J.**
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Annual Meeting (Madison Hotel). Sec.-Treas., A. F. Pleibel, 683 Prospect St., Maplewood, N. J.

Oct. 24-29—St. Louis, Mo.
INTERNATIONAL CITY MANAGER'S ASSOCIATION. Annual Convention (Chase and Park Plaza Hotels). Exec. Dir., Orin F. Nolting 1313 E. 60th St., Chicago 37, Ill.

Oct. 25-27—Kansas City, Kans.
NATIONAL ASSOCIATION OF MUNICIPAL UTILITIES. Annual Convention (Town House Hotel). Asst. Sec., A. D. McGuire, P. O Box 99, Overland Park, Kans.

Oct. 25-29—Houston, Texas
NATIONAL TAX ASSOCIATION. Annual Conference (Rice Hotel). Exec. Dir., Walter J. Kress, National Tax Association. 909 Payne-Shoemaker Bldg., Harrisburg, Pa.

Oct. 26-28—Minneapolis, Minn.
NATIONAL HIGHWAY CONFERENCE FOR COUNTY ENGINEERS AND OFFICIALS. Annual Meeting (Leamington Hotel). Exec. Vice Pres. Louis W. Prentiss. American Road Builders' Association, World Center Bldg. Washington 6, D. C.

***Oct. 26-30—Monticello, Ill.**
AMERICAN WATER WORKS ASSOCIATION—Illinois and Indiana Annual Water Works Management Short Course (Allerton Park). For information, address T. E Larson, State Water Survey Division Urbana, Ill.

***Oct. 26-30—San Antonio, Texas**
INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. Annual Meeting (Hotel Hilton) Managing Director, Hall Colling, Suite 1120, 610 South Broadway, Los Angeles, Calif.

***Oct. 28-30—Dayton, Ohio.**
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Biltmore Hotel). Sec., J. Howard Bass, Robert R McGivern & Associates, 1771 W. 5th Avenue, Columbus, Ohio.

***Oct. 29-31—Coos Bay, Ore.**
PACIFIC NORTHWEST SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Tioga Hotel). Sec.-Treas., G. H. Dunstan, Box 176, Pullman, Wash.

***Oct. 29-31—Pensacola, Fla.**
FLORIDA LEAGUE OF MUNICIPALITIES. Annual Meeting (San Carlos Hotel). Exec. Sec., Gordon T. Butler, 218 W. Adams St., Rm., 301, Jacksonville, Fla.

Nov. 15-18—Springfield, Mass.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Sheraton Kimball Hotel). Asst. Dir., Allen H. Seed Jr., 47 E. 68th St., New York, N. Y.

Nov. 29-Dec. 2—Denver, Colo.
AMERICAN MUNICIPAL ASSOCIATION. Annual Convention (Brown Palace Hotel). Exec. Dir., Patrick Healy, Jr., 1612 K St. N.W., Washington 6, D. C.

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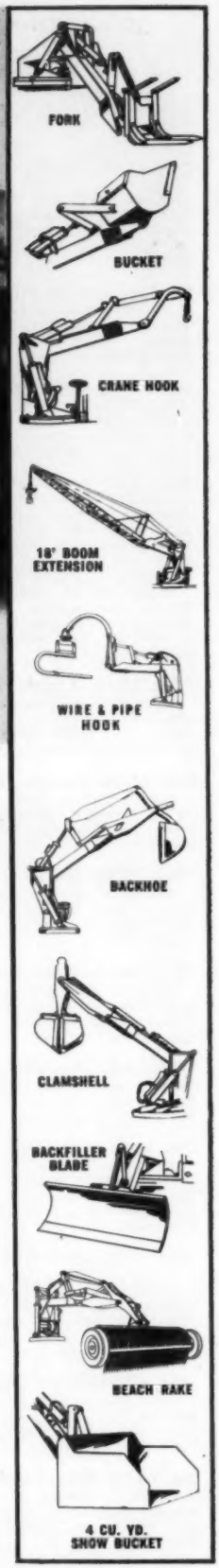

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MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

A Manual for the City Building Inspector

FIELD INSPECTION OF BUILDING CONSTRUCTION—*By Thomas H. McKaig. F. W. Dodge Corporation, 119 West 40th St., New York 18, N. Y. 1959. 352pp. $9.35.*

In this book, the author, who heads a firm of engineering consultants in Buffalo, N. Y., and serves as chairman of the New York Board of Examiners for Professional Engineers and Land Surveyors, has called on his own 25 years of personal experience to produce a work that is both definitive and compact.

There are seven chapters in all, the first six each deal with a particular phase of construction inspection, and the seventh is entirely devoted to the complex problem of a step-by-step inspection of concrete pouring and laying.

How New Highways Should Be Built

THE SAGAMORE CONFERENCE ON HIGHWAYS AND URBAN DEVELOPMENT—*Issued by the Automotive Safety Foundation, 200 Ring Building, Washington 6, D. C. 1959. 29pp. 50c.*

This little booklet asks rather plaintively for more planning if the nation's highway program is to work. It recommends that

- all levels of government cooperate;
- state authorities consider local problems more carefully;
- local governments be receptive to regional solutions; and
- all levels support local and area-wide urban planning.

Suggestions for Revising The City Charter

CONSIDERATIONS FOR REVISING THE CITY CHARTER — *Syracuse Charter Revision Committee, 215 City Hall, Syracuse 2, N. Y. 1959. 35pp. No charge.*

This brochure, the work of a nine-man committee, offers some exceedingly sensible suggestions for revising city charters to make local government more in keeping with our jet age. Though concerned chiefly with the City of Syracuse, N. Y., the main recommendations offer helpful suggestions for other municipalities. They are:

Replace present charter with a new streamlined, and more general document.

Retain and strengthen the mayor form of government.

Establish the position of the mayor's chief administrator to serve as an overall assistant to the mayor.

There are ten other recommendations designed to cut out administrative overlapping.

A Guide to Better Assessment Practices

REPORT OF THE JOINT INTERIM COMMITTEE ON ASSESSMENT PRACTICES TO THE CALIFORNIA LEGISLATURE. *California Legislature, Room 4164, State Capitol, Sacramento 14, Calif. 1959. 559pp. No charge.*

This report is the work of a ten-man committee headed by Glenn E. Coolidge, member of California State Assembly. It is thorough-going, comprehensive and factual. Though confined to the State of California, it contains information regarding communal assessment practices that can be applied anywhere. This, together with its 16 appendices, should make it useful reading for city officers with assessment problems.

New Uses of Lighting

LIGHTING IN ARCHITECTURE — *By Walter Koehler and Wassili Luckhardt. Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y. 1959. 223 pp. $15.*

This book deals generally with indoor use of new lighting designs to enhance the beauty of modern architectural forms. City planners will also find useful ideas for outdoor lighting designs in this very comprehensive and exceedingly informative study of what is still a new science.

Fire Chiefs 1958 Conference

PROCEEDINGS OF THE 85TH ANNUAL CONFERENCE — *International Association of Fire Chiefs, Inc., 232 Madison Ave., New York 16. 228 pages. $1.*

This is chiefly an account of the doings at the Fire Chiefs Conference in Los Angeles, September 16-19, 1958. Besides a detailed report of the panel discussions, there is a complete list of members of the International Association of Fire Chiefs occupying 48 pages.

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SELF-PROPELLED MOW-MOBILE, made by Jacobsen Mfg. Co., Racine, Wis., mows 5 to 7 acres a day — gets to within one inch of walls, trees, and other obstructions. It's powered by a 9.2-hp Model AENL Wisconsin Engine.

LIGHT-WEIGHT COMPRESSOR, made by P. K. Lindsay Co., Everett, Mass., delivers from 55 to 60 cfm of air for rock drills, sprayers, and other equipment requiring on-the-job air power. Model VF4D 25-hp Engine powers the compressor.

PAR FOR THE COURSE. Wisconsin-powered Doodlebug golf buggy speeds golfers around course — ups revenue. Made by Service Engineers, Inc., Fort Worth, Texas. Buggy uses a 7-hp Model BKN Wisconsin Engine.

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How Urban Transportation Might Be Improved

PLANNING FOR URBAN TRANSPORTATION—PROCEEDINGS OF THE SECOND ANNUAL SPRING CONFERENCE OF THE ORGANIZATION OF CORNELL PLANNERS. *The Organization of Cornell Planners, College of Architecture, Cornell University, Ithaca, N. Y.* 1959. 85*pp.* $2.00.

In his introduction, Mr. Ralph Gakenheimer, chairman of the Conference of the Organization of Cornell Planners, lists five main transportation problems arising from modern trends in urban development that the conference attempted to answer:

- Transportation as a Builder of Cities
- Trends in Urban Transportation.
- Framework for Planning—Search for a Policy.
- Land Use Planning in an Age of Changing Transportation Patterns.
- Metropolitan Transportation.

The panelists, who represent a cross-section of educators and city planners, offer many interesting views and some very sensible recommendations, all of which make this report useful reading for a city engineer.

New Apartment House Designs Here and Abroad

MASTERWORKS OF INTERNATIONAL APARTMENT BUILDING DESIGN—*By F. R. S. Yorke and Frederick Gibberd. Frederick A. Praeger, Inc., 15 West 47th St., New York 36, N. Y.* 1958. 211*pp.* $12.50.

City architects and public housing administrators looking for new ideas will find them a-plenty in this publication. It contains descriptions of some 200 new apartment house projects, designed by some of Europe's foremost architects, each illustrated by fine photographic plates and also carefully sketched interior diagrams. The American representation is smaller but hardly less impressive.

A Plea for Housing Desegregation

WHERE SHALL WE LIVE?—*A Report of the Commission on Race and Housing. University of California Press, Berkeley 4, Calif.* 1958. 77*pp.* $1.50.

Four educators and thirteen business and professional men, all representing a cross-section of American municipalities, served on this commission to inquire into housing discrimination. This report is the result of their three-year study. It deals frankly with a very explosive subject and, genuinely seeks to find solutions to problems that have harassed, and doubtless will continue to harass, city housing administrators for decades.

A Manual for City Housing Officials

URBAN RENEWAL — *By Reuel Hemdahl. The Scarecrow Press, Inc., 257 Fourth Ave., New York 16, N. Y.* 1959. 367*pp.* $8.

City administrators plagued by the problem of housing blight in their own communities will find this book useful reading. In it, the author, who holds the position of Director of the Department of Urban Redevelopment in Louisville Ky., examines the whole problem of residential and business property obsolescence and offers some practical suggestions for its arrest. The footnotes which are found at the end of each chapter contain useful source material and bibliographical references that should be of great practical value to student as well as practicing city engineers.

How Fast Shall We Grow?

THE POPULATION AHEAD—*Edited by Roy G. Francis. University of Minnesota Press, Minneapolis 14, Minn.* 1958. 159*pp.* $3.75

Some of the nation's top genetic experts have contributed their views to this symposium on Population Problems held at the University of Minnesota last year. This book contains the papers read during the symposium and also briefs of the discussions. They are wise, balanced, and extremely thought-provoking, particularly Jan O. M. Broek's "Man-Land Ratio," which deals with population density and land use, and Karl Sax's "Genetic Future Man". All of them deserve widespread study.

Other Reports Received

ADMINISTRATION & GOVERNMENT

BOSTON, MASS.—Report on Third Conference on Municipal Administration. Administrative Services Department, Room 50, City Hall, Boston, Mass. 1959. 84pp. No charge.

CONNECTICUT—Units of Local Government. Institute of Public Service, University of Connecticut, Storrs, Conn. 1959. 19 pp. 50c.

VIRGINIA—The Administrative Code—Fairfax Co. Office of Chief Administrator. Fairfax, Va. 1959. 22 pp.

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To further increase the efficiency of your work, each of these loaders has a whole family of buckets. You choose the size that is most suitable for your operating conditions and the materials you handle. Buckets range from 2¼ to 5 yd for the TL-20; 1½ to 4 yd for the TL-16; 1 to 3 yd for the TL-14.

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ANNUAL REPORTS

CAMDEN COUNTY, N. J.—Annual Report 1958. County Planning Board, Camden, New Jersey. 1959. 29 pp. No charge.

MULTNOMAH, ORE.—1957-1958 Annual Report. Tax Supervising & Conservation Commission, 675 County Courthouse, Portland 4, Ore. 135pp. No charge.

NEW ORLEANS, LA.—Annual Report of Mayor. Mayor's Office, City Hall, New Orleans, La. 64pp. Illustrated. No charge.

OAKLAND, CALIF.—Annual Report—Street & Engineering Dept. Office of City Manager, Oakland 12, Calif. 68pp. No charge.

WILLIAMSTOWN, MASS.—Annual Report. Office of Town Manager, Williamstown, Mass. 127pp. No charge.

FINANCE & TAXATION

BALTIMORE, MD.—Pertinent Financial Data, City of Baltimore. Commission on Governmental Efficiency and Economy, Inc., Mercantile Trust Building, Baltimore 2, Md. 1959. 16pp. No charge.

MISCELLANEOUS

GENERAL—Directory of Municipal Bond Dealers of the United States. Revised Edition The Bond Buyer, 67 Pearl Street, New York 4, N. Y. 1959. 436 pp. $5. (Trade price $2).

PLANNING, ZONING & HOUSING

GENERAL—New Dwelling Units Authorized by Local Building Permits, U. S. Department of Labor, Bureau of Labor Statistics, Washington 25, D. C. 1959. 28pp. No charge.

GENERAL—Roots of City Planning by George H. Herrold. St. Paul Public School Department, St. Paul, Minn. 1958. 16pp. No charge.

CHICAGO, ILL.—Pattern for Progress. Chicago Housing Authority, Chicago, Ill. 1959. Unpaged. No charge.

LEE'S SUMMIT, MO.—Preliminary Guide Plan for Lee's Summit. Community Studies Inc., Kansas City, Mo. 1959. 139pp. $5.00.

MAMARONECK, N. Y.—Housing Survey, State of New York Division of Housing, 270 Broadway, New York 7, N. Y. 1959. Unpaged. No charge.

TRAILER PARKS

WICHITA, KAN.—Trailer Parks. Metropolitan Area Planning Commission, 104 S. Main Street, Wichita 2, Kan. 1959. 14pp. No charge.

WATER

CHICAGO—Summary Preliminary Report on Ground-Water Resources of the Chicago Region. By Max Suter, Robert E. Bergstrom, H. F. Smith, Grover H. Emrich, W. C. Walton and T. E. Larson. State of Illinois Department of Registration and Education, Government Building, Urbana, Ill. 1959. 18 pp. No charge.

REPRESENTATIVE MUNICIPAL BOND ISSUES

From June 1st to July 7th, 1959

Date of Issue	Locality	Amount in $1000	Purpose	Term Yrs. to Maturity	Rate of Int.	Yield %
6/ 1/59	Winnetka, Ill.	125	Park	5	..	2.84
6/ 2/59	Lynn, Mass.	400	Tax Anticipation	5½ mo.	..	2.09
6/ 3/59	South Orange, N. J.	550	General Improvement	10⅔	3.45	3.41
6/ 4/59	Montgomery County, Ohio	359	Sewage Treatment	11	4½	3.79
6/ 5/59	Garden City, Kan.	120	Paving, Gen. Obligation	..	..	3.23
6/ 6/59	Jasper, Tex.	190	Electric	1–15	..	4.08
6/ 7/59	Rye, N.Y., Sewer Dist 7	255	Sewerage	13¼	3.80	3.76
6/ 8/59	Evanston, Ill.	2,525	Park, Library, Gen. Obl.	12	..	3.469
6/ 9/59	Albany, N. Y.	640	Water Supply	11½	3½	3.41
6/20/59	Bexar Water Dist., San Antonio, Tex.	500	Improvement Revenue	17⅔	4¼	4.248
6/22/59	Biloxi, Miss.	490	Public Hospital	..	..	4.44
6/22/59	Newport, Ky.	400	School Building Rev.	..	..	4.55
6/23/59	Portland, Ore.	3,000	Water	3–22	..	3.64
6/24/59	Bennington, Vt.	910	Sewage Disposal	15⅔	4.0	3.91
6/24/59	Danvers, Mass.	310	Sewer, Water, School	5	3.40	3.39
6/25/59	Honolulu, Hawaii	20,000	Public Improvement	11½	4.10	4.06
6/25/59	Braintree, Mass.	225	Sewer	8	3.70	3.64
7/ 2/59	Bedford, N. H. Sch. Dist.	70	School	4⅔	3.70	3.64
7/ 6/59	Greenville, Tex.	475	Airport	5	..	3.28
7/ 7/59	Scotch Plains Twp., N. J. Sch. Dist.	2,392	School	13¾	4.48	4.45

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Tractor Show Demonstrates Four New Loaders

Those attending the Oliver World Congress on Hawthorn - Mellody Farm near Libertyville, Ill., saw four new crawler-mounted front-end loaders in action. Their sizes ranged from ⅝ to 2¼ cubic yards.

Of particular interest is Oliver's new OC-96 crawler tractor with 1-cubic yard front-end loader, and rear-mounted scarifier. It is the only crawler in its price range that offers a new concept in steering. Trans-O-Matic, as the steering system is called, utilizes counter-rotating tracks to provide an extremely short turn. The operator can also use the fast "Spot Turn" where one track remains still and the opposite track stays in motion.

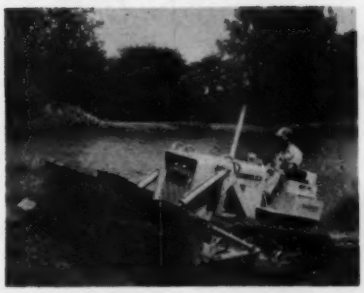
The OC-96, with its special long tracks and 15,000 - pound overall weight, has exceptional stability. It easily loads heavy materials such as wet sand and gravel. The tractor is equipped with a torque converter and directional power shift.

As a companion model to the loader, Oliver unveiled the versatile OC-9 crawler. It is also equipped with track counter-rotation, directional power shift, and torque converter. With its angle-dozer, the tractor makes an ideal rig for confined area jobs such as basement digging, home developments and mine work.

In addition, Oliver displayed three sizes of wheel tractors, ranging from 34 to 65 belt hp, with combinations of front-end loaders and rear mounted backhoes. Contractors were impressed with the action of the Model 770 with ¾-yard digging bucket. Its outstanding feature of torque converter and power shift, reversing, oil-type clutch eliminates the need of shifting transmission gears. It also affords excellent crowding action for loading the bucket in stockpile and digging operations.

For additional information, write THE OLIVER CORP., INDUSTRIAL DIVISION, 19300 EUCLID AVE., CLEVELAND 17, OHIO, or use the Post Card on the insert following Page 54. Circle No. 902.

The Oliver OC-96 with 1-yard front-end loader and rear-mounted scarifier performs before a group at the World Congress. The tractor first ripped up a strip with the scarifier and then picked up the loosened dirt with the loader.



Finger-tip controls on Oliver's compact and versatile OC-9 tractor, shown here with dozer blade, makes operation simple.

Dual Cable Sewer and Drain Cleaner

The electric eel sewer and drain cleaner is an extremely compact, portable machine, designed for use on lines from 3 inches to 12 inches in diameter and to run up to 250 feet.

Its cable, which consists of an inner member wound left-hand and an outer member wound right-hand, self-feeds both in and out of the line (even through "p" traps), and is said to be absolutely nonhelixing. The two cables are tied together so that should one break the entire cable can still be pulled easily from the line. Convenient 8-foot cable sections with instant, snap lock connectors permit work in small spaces and keep replacement cost low. All manual handling of the cable is eliminted, and operation is completely safe.

The dual cable sewer and drain cleaner is equipped with a motor of the condenser type (back-geared 3 to 1) and with a rugged slip clutch that is mounted directly to the back-geared shaft. For further information, write THE OHIO TOOL AND ENGINEERING CO., 952 SPRING ST., SPRINGFIELD, OHIO, or use the Post Card on Page 54. Circle No. 899.

Sanfax for Street Sweeping

A new chemical agent, reported to exhibit excellent results as a wetting agent, penetrating agent, dust laying compound and detergent, is being marketed by The Sanfax Company, Atlanta, Ga.

The use of Sanfax 299 in street sweeping equipment is particularly emphasized. When added to the water in the sweeper tanks "299" is said to double the life of sweeping brooms and reduce the amount of water required in street cleaning operations.

Sanfax 299 effectively enhances "dust laying" qualities of water, and is also marketed for treating water wells for soil penetration, treating dry wells and catch basins.

For complete information, write THE SANFAX COMPANY, P. O. Box 604, ATLANTA, GA., or use the Post Card on Page 54. Circle No. 895.

The handle of Ohio Tool's electric eel sewer and drain cleaner can be raised to operating position or folded to transport or storage position with ease.

Two-Cubic Yard Tractor Shovel Delivers Fast Work Cycle

Newest of the Trojan line of pneumatic tired tractor shovels is the Model 204, with maximum lifting capacity of 12,000 pounds, dumping clearance of 10 feet, 7 inches under the hinge pin, and 8 feet 7 inches under the bucket cutting edge. (Dump angle at this

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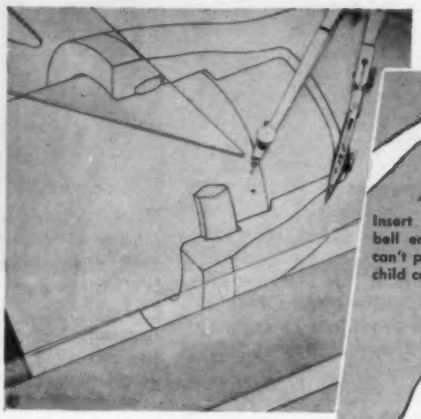


Insert Rubber gasket in bell end of pipe — you can't put it in wrong — A child can do it.

Wipe on a small amount of special lubricant—This reduces friction.

Underwriters Approved

Efficient, Economical and Fool Proof—

ALTITE JOINT®

By APCO

Patent Applied For.

The **ALTITE JOINT** has been subjected to a series of rigid tests much more severe than are encountered under the most extreme installation and service conditions in the field. Even under extreme conditions, this joint is so simple to install — you could hardly go wrong if you tried.

Insert plain beveled end of pipe — there are no grooves, ridges or tips on gasket to interfere with smooth insertion.

Small amount of pressure required to force plain end to bottom of socket—Your simple, time saving joint is completed.

For Efficiency, Economy and Simplicity—

Order ALTITE For Your Next Job

ALABAMA PIPE COMPANY

General Offices — ANNISTON, ALABAMA

SALES OFFICES

122 South Michigan Ave., Chicago 3, Ill.
350 Fifth Ave., New York 1, N. Y.
950 Dirks Building, Kansas City, Mo.
18505 W. Eight Mile Rd., Detroit 41, Mich.
5335 Southern Ave., South Gate, Calif.

The Trojan 204 offers exceptional stability and a high degree of maneuverability.

point is 47°, providing for fast, full clean-out of the bucket).

The 2-cubic yard tractor shovel is available with either gas or diesel power and is equipped with full power shift, 3-speed transmission, and a 3.5 to 1 torque multiplying converter. Travel speeds range from 3 mph in low gear to 21 mph in third gear, in both forward and reverse. Hydraulic power steering is standard equipment.

Extra safeguards have been built into the Model 204, to insure a longer work life, and the operator's compartment is equipped with a panoramic instrument panel. A selection of buckets with cubic yard capacities of 1½, 2 and 2¾, are available, as well as a full complement of attachments readily interchangeable with the bucket.

For further information on this 4-wheel drive tractor shovel, write The Yale & Towne Manufacturing Co., Trojan Division, Batavia, N. Y., or San Leandro, Calif., or use the Post Card on Page 54. Circle No. 896.

Harley-Davidson Introduces Motor Scooter

A recent entry in the growing motor scooter market, the trim-looking "Topper" claims a number of exclusive mechanical features and high fuel economy (over 80 miles per gallon).

A compact, 2 cycle engine powers the Topper. It is of special Harley-Davidson design and is mounted to the power frame on four rubber mounts between the foot rests. This frees it from vibration, and places 42% of the scooter's total weight on the front wheel, giving the scooter a lower center of gravity for better balance and roadability.

Brakes are 5-inch internal expansion type and stop the scooter from a speed of 30 mph within 36 feet. A hand-grip throttle to control speed and a brake control to stop are the Topper's only driving controls. Fully automatic transmission enable the driver to accelerate smoothly from full stop to motion without shifting gears. The scooter accelerates from 0 to 30 mph in eight seconds.

Excellent riding qualities are claimed for the Milwaukee-made Topper. Tires are 4.00 x 12 and are said to give the scooter the largest wheel size of any scooter on the market. For complete information, write Harley-Davidson Motor Co., Milwaukee 1, Wis., or use the Post Card on Page 54. Circle No. 901.

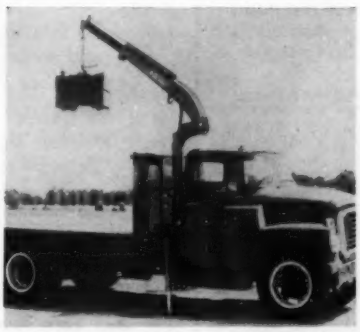
Lightweight Crane for Truck Mounting

The FOCO-CRANE can be mounted in a 13" space between cab and truck bed. It elevates, turns and extends hydraulically, and folds out of the way when not in use. It permits one man to load or unload a flatbed or dump truck quickly.

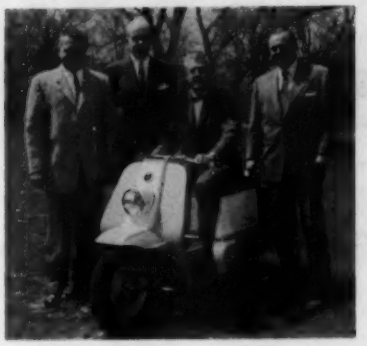
A patented slewing gear provides positive, precise positioning of capacity loads. Two safety valves prevent overloading; two hydraulic legs prevent tipping and stress on truck frame and springs. Additional hydraulic circuits may be added easily to operate such boom accessories as hydraulic grabs, clamshell buckets and the like.

Several models of the FOCO-CRANE are available. Model F-4400X lifts up to 2.2 tons. Maximum lifting height is 21 feet; with boom fully extended, 15'3". Its swing angle is 270°. Weight is 1200 pounds.

For additional information, write Focowil Corporation, 79 W. Monroe St., Chicago, Ill., or use the Post Card on Page 54. Circle No. 900.

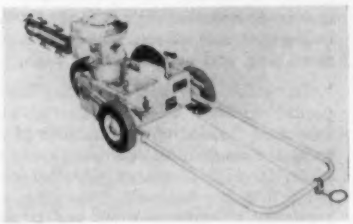


Model F-4400X, low-cost FOCO-CRANE, doubles the use of a flatbed truck.



The second-generation management team of the Harley-Davidson Motor Co., Milwaukee, Wis., pose with their newest product, the Topper motor scooter. Left to right they are: G. M. Davidson, vice president, manufacturing; W. H. Davidson, president; W. J. Harley, vice president, engineering (on scooter); W. C. Davidson, vice president, sales.

Self-Propelled Utility Trencher Digs by Itself



A combination guide-bridle and handle bar lifts into waist high position, making the Davis Pup easily portable.

Especially designed to prepare ditches for gas and water pipe, electric and telephone line installations, or for sprinkling systems, the Davis Pup trenches from 2" to 3" wide and down to depths of 3 feet. Once it has started trenching, no operator is needed except for casual observation and to stop it.

The Pup has a positive, variable speed drive with a unique winching mechanism that draws the unit straight down the line to be dug. Six different speed settings, as well as neutral and stop-forward motion, are controlled by a single lever. The unit can obtain speeds up to 400 feet per hour.

Adjustment to desired depth is done with a screw-type self-locking depth control crank, and a depth control gauge provides visual reference for proper setting. The Pup

ESSICK
VIBRATING COMPACTORS

ESSICK VR-28-W PATCHING ASPHALT IN GARDEN GROVE, CALIF.

"MAINTENANCE PRODUCTION TRIPLED... ...COSTS DECREASED 80%"

SEWARD H. DART, STREET MAINTENANCE SUPERINTENDENT-SHOWN WATCHING HIS 28" ESSICK VIBRATING COMPACTOR IN ACTION—STATES:

"Irrigation water tracked into the intersections and gutter aprons in Garden Grove, constantly eroded the asphalt and made maintenance a full time problem. As a result, our gutter and intersection patching required frequent reworking, and our costs were high.

"After a demonstration of the 28" Essick Vibrating Compactor, we knew we had found the answer. It was self-propelled, hooked on the tail gate of a dump truck, and produced compaction equivalent to an 8 ton roller on asphalt. Its high frequency vibration compacts an asphalt patch that is completely dense—that can be opened immediately to traffic without any marking or damage to the asphalt.

"Now with our patching unit consisting of the 1½ ton dump truck, an Essick 120 gallon Truck Mounted Emulsion Unit, a propane torch, and the Essick VR-28-W Vibrating Compactor, the patch life has been tremendously extended, our maintenance production has tripled, and our costs have decreased 80%.

"The Essick VR-28 really solved the patch problem for us."

SELF PROPELLED — MANEUVERABLE — PORTABLE

Essick High Frequency Vibrating Compactors are constantly exceeding the densities and specifications performed by other compaction methods, while creating new standards of compaction for all types of fills, sub base, base materials, and asphalt.

CALL YOUR ESSICK DEALER FOR A DEMONSTRATION

9 Models of Vibrating Compactors from 13" to 72" Widths

Also 14 models of Tandem Rollers from ½ to 14 Tons

ESSICK MANUFACTURING COMPANY

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Affiliated with THE T. L. SMITH COMPANY, Milwaukee, Wisconsin

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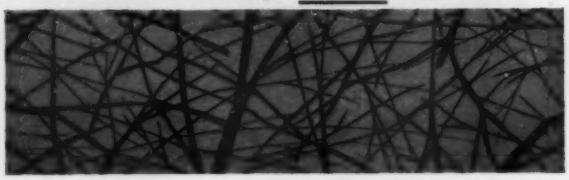
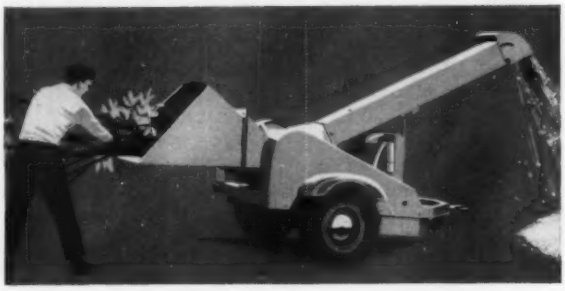
You can chip more brush



faster

at less cost

with an ASPLUNDH CHIPPER

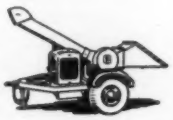


than with any other machine on the market today!

Asplundh Chippers can cut your hauling cost 75%, completely eliminate brush burning, and provide a useful, valuable by-product.

So ravenous is its appetite, so powerful its motor, and so fast its chipping action, it is equalled by no other. Yet it is so simple in design that maintenance is reduced to an absolute minimum.

Write *today* for full details. Better—ask for a prompt demonstration, without the slightest obligation.



ASPLUNDH CHIPPER COMPANY

505 York Road, Jenkintown, Pa.

By Actual Test the Fastest Chipper Made

is available with both gasoline and electric power.

For descriptive literature, write DAVIS MFG. CO., INC., 1301 SOUTH HANDLEY, WICHITA 13N, KANS., or use the Post Card on Page 54. Circle No. 894.

Walk-Behind Power Buggy

This all new unit, Model BG-10, features four wheel stability and a dead man brake. Its capacity is 10 cubic feet or a 1500-pound payload. The differential permits driving power to both wheels while still permitting small radius turns. The Power Buggy can be used in extremely tight quarters. It is available with flat pallets for handling material such as brick and block. Complete bucket dump-out is helped by the use of large radius corners in the bucket.

Additional information can be obtained from AEROIL PRODUCTS COMPANY, INC., WESLEY ST., SOUTH HACKENSACK, N. J., or by using the Post Card on Page 54. Circle No. 893.

Giant Butterfly Valve

This Builders-Providence butterfly valve is to be installed in a vault 40 feet below ground-level to control the flow of raw water (a million gallons every three minutes) in the Montebello Tunnel, in Baltimore, Md. It is said to be the largest rubber-seated butterfly valve ever constructed to American Water Works Association design specifications.

The 120" valve weighs 41,000 pounds, and has a shaft of solid stainless steel 9" in diameter and 15' long. Its disc weighs 9000 pounds and has a stainless steel seating edge which closes against a 1¼" thick rubber seat which weighs 450 pounds and is held in place by stainless steel segments.

The specially constructed Phillie Gear valve operator develops a torque of 750,000 inch pounds with a 40-foot pound input which permits closure of the valve by one man in case of emergency.

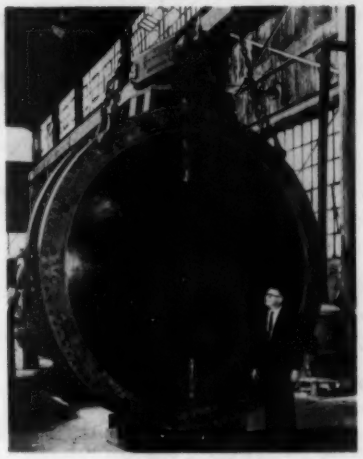
For additional information on this and other butterfly valves, write BUILDERS-PROVIDENCE DIVISION OF B-I-F INDUSTRIES, INC., 345 HARRIS AVE., PROVIDENCE 1, R. I., or use the Post Card on Page 54. Circle No. 904.

American-Marietta Expands

In a move to enter the markets for concrete industrial storage bins, farm silos, and production line concrete products used as components in the construction of entire buildings American - Marietta Company has acquired Marietta Concrete Corporation.

According to Robert E. Pflaumer, president of American - Marietta, Marietta Concrete will be operated as a part of the parent company's Concrete Products Division. F. Leonard Christy, president of Marietta Concrete, will continue as the chief operating officer, and the entire organization will remain intact.

The Marietta, Ohio, firm is a 43-year-old producer of concrete industrial storage silos and bins, concrete stave farm silos; it also manufactures a variety of precast structural components.



With the help of cranes, derricks and 15-foot ladders and a specially constructed test head, this big 120" butterfly valve was tested for bubble-tightness, at 30 pounds per square inch design pressure and at 45 psi shock pressure.

Pole Setter

Three new lightweight maneuverable maintenance truck units are equipped to dig holes, set poles and perform general utility work. All three have derricks of 19-foot sheave. In addition, the C-4 has a single drum winch of 8000 pound capacity, while the C-5 has a double drum winch of the same capacity which permits live boom derrick action while under load. The C-3 unit is provided only with a derrick which may be installed on virtually any winch truck.

For specifications and complete in-

The C-5 maintenance truck with 19-foot derrick is able to set poles up to 40 feet.

YOU CAN BE PENNY-WISE AND SIGN-FOOLISH.....

Be cautious of signs that look like a good buy on the "flat" surface. Only embossed traffic-control signs and street-name assemblies by Miro-Flex have the durability to withstand the elements and abuse year after year. Miro-Flex signs are made on zinc-coated, Bonderized steel with baked-on enamel finish. Embossing gives them extra strength, rigidity, and legibility. A complete line of uniform signs conforming to Bureau of Public Roads standards and custom-designed signs are available. Send for free catalog and name of nearest source.

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THE **MIRO-FLEX** CO., INC.

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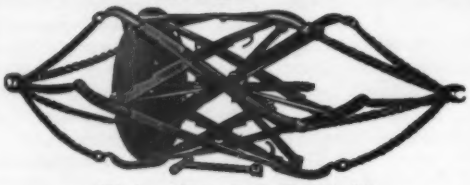
■ Koontz Equipment Corporation, 325 Ohio River Blvd., Emsworth, Pittsburgh 2, Pennsylvania ■

EXPANDING ROOT CUTTER SEWER CLEANER



Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Open and in action removing roots and cake sediment like this.

Write for our new catalog on complete sewer cleaning equipment.

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formation, write TEL-E-LECT PRODUCTS, INC., 10001 MINNETONKA BLVD., MINNEAPOLIS 26, MINN., or use the Post Card on Page 54. Circle No. 889.

Powerful Fluorescent Tube

An improved version of the G-E Power-Groove lamp, a new fluorescent tube, produces 15% more light but consumes only 7% more electric power. Increase in light output is achieved by redesign which involves grooves along opposite sides of the tube, rather than along one side only. This permits the use of thinner glass; consequently the weight of the lamp is reduced by nearly one-quarter, making it easier to handle.

Widespread use is expected in new lighting installations on streets and highways.

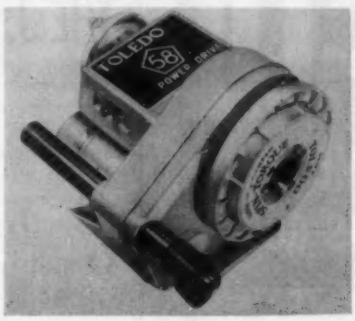
The new 8-foot tube produces 15,000 lumens at 215 watts, or an efficiency of 70 lumens per watt. This is compared with 13,000 lumens at 200 watts or 65 lumens per watt for the earlier Power-Groove. The new lamp will also be made in 6- and 4-foot lengths.

For complete information, write GENERAL ELECTRIC CO., NELA PARK, CLEVELAND 12, OHIO, or use the Post Card on Page 54. Circle No. 888.

Lightweight Power Drive

Weighing only 73 pounds, Toledo's new No. 58 Power Drive is said to be lighter than any comparable power drive on the market today. Its spin torque chuck with enclosed round jaws reportedly eliminates the chance of chips falling into moving parts and the danger of catching fingers or gloves. A sealed, factory-lubricated gear train with precision hobbed helical cut gears and ball bearings throughout helps keep maintenance low. A new, powerful motor that can be easily removed, an improved centering device, a safety factor switch, and heavy-duty base with center screw for bench or stand mounting in any position through 360° are other features.

For complete information, write THE TOLEDO PIPE THREADING MACHINE CO., 1445 SUMMIT ST., TOLEDO 4, OHIO, or use the Post Card on Page 54. Circle No. 887.

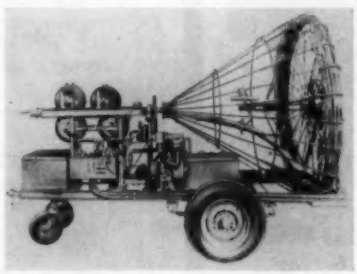


Toledo's No. 58 power drive handles pipe or conduit from ⅛" to 2" and rod and bolts ¼" or larger.

Introduces Hydraulic Drive System to Sewer Cleaning Equipment

According to the manufacturer of the "Super Hydrodder", the hydraulic system of this sewer and conduit cleaner eliminates wasted energy. For if the thrust of the tool is resisted by debris in the sewer or pipe, hydraulic power automatically increases the rotation of the reel, which causes the tool to rotate or drill faster. (Manual adjustments are not needed.) When resistance is overcome, the hydraulic force is said to automatically redistribute itself back to the forward thrust of the rods while maintaining sufficient torque at all times. Torque may be increased without shutting down the machine. Hydraulic drive also cushions the shock to rods, tools and engine.

Positive pneumatic feed, another feature of the "Super Hydrodder", reportedly assures greater, surer thrust, because the rod, as it passes through the drive wheels, is in constant contact with pliable rubber. The machine accepts any size rod, any length rod, or continuous rod.



W. H. Stewart's sewer and conduit cleaner, which offers hydraulic drive and positive pneumatic feed, may be truck mounted.

Additional features of the "Super Hydrodder" include 9-hp engine, precise pressure gauge, accurate footage indicator, safety overload limit valve. For additional information, write W. H. STEWART INC., P. O. Box 767, SYRACUSE, N. Y., or use the Post Card on Page 54. Circle No. 886.

Highway Guard Posts

The manufacturer of these highway guard posts reports that when set in two or three flexible barriers, these units have repeatedly stopped cars traveling as fast as 60 mph in approximately 32 feet.

Each Pylacon guard post consists of a special Butyl compound circular post 3'6" long with 10" diameter. A steel base mounting is inserted in the Butyl core and extends below the pavement or divider strip surface. The posts have horizontal or spiral type of stripping using 3" pressure sensitive Federal yellow Scotch Lite tape or Codit.

For specifications and descriptive literature, write PYLACON, INC., TOLEDO 7, OHIO, or use the Post Card on Page 54. Circle No. 885.

Pylacon posts stand guard at a railroad underpass.

Compact Pressure Control for Air and Gases

This newly designed SP-DT pressure control, designated by the manufacturer as Type AP-153, is recommended for applications involving air or gases that are not injurious to steel or silver solder. Its light weight (1¾ pounds) and small size (4⅛" x 3⅛" x 2⅞") make it particularly suitable for mounting where space is limited or for mounting on wire channels, etc.

The operating range (adjustable) of this control is 1 to 20 psig; differential (fixed), 0.5 psig; maximum pressure, 30 psig. Operating

McDONALD

THE QUALITY NAME IN WATER WORKS BRASS GOODS

McDonald has been serving American cities as a manufacturer of high quality water works brass goods for more than 100 years. All this experience in design and manufacture goes into the McDonald water works brass you buy today.

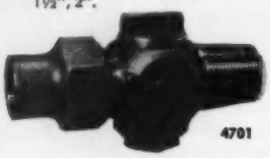
McDonald Corporation and Curb Stops, shown below, as well as the complete McDonald line, are manufactured from bronze metal which meets American Water Works Association specifications. McDonald gives easier operation because of steeper key taper design. All valves are machined to exact tolerances and individually lapped to guarantee perfect fit. McDonald valves are rigidly inspected and tested in both open and closed positions and are available in a wide range of sizes to meet your requirements.

corporation stops

3121

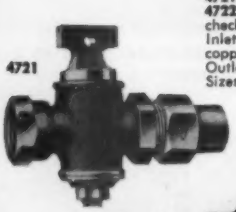
3121 — Without coupling.
Inlet — A.W.W.A. corporation stop thread.
Outlet — Increasing iron pipe thread (⅜" size has ¾" I.P. Thread.)
Sizes — ½", ⅜", ¾", 1", 1¼", 1½", 2".

4701 — with straight coupling nut (no gasket).
Inlet — A.W.W.A. corporation stop thread.
Outlet — Standard A.W.W.A. thread for copper service pipe.
Sizes — ½", ⅜" x ¾", ¾", 1", 1¼", 1½", 2".



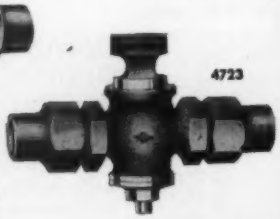
4701

curb stops • round way • solid tee head



4721

4721 — Stop.
4722 — Stop and Drain — with check (not illustrated).
Inlet — A.W.W.A. thread for flared copper tube.
Outlet — Inside I.P. thread.
Sizes — ½", ¾", 1", 1¼", 1½", 2".



4723

4723 — Stop.
4724 — Stop and Drain — with check (not illustrated).
Inlet — A.W.W.A. thread for flared copper tube.
Outlet — A.W.W.A. thread for flared copper tube.
Sizes — ½", ¾", 1", 1¼", 1½", 2".

For information on McDonald's complete line, write for free catalog.

A. Y. McDONALD MFG. CO.
Dept. AC-859, 12th & Pine
DUBUQUE, IOWA

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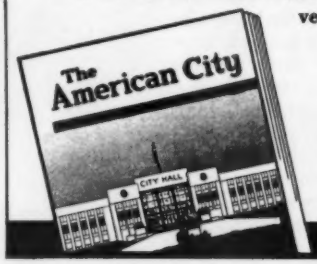
"The Magazine I Read in Bed"

Last month a veteran city official who came up through the ranks of his public works department, introduced his wife to one of our editors like this:

"Mother, I want you to meet the man who edits that magazine I always bring home and read in bed."

We were delighted with the introduction. For the past 50 years we have followed the policy of presenting only that information which enables skilled and experienced officials like our friend to run their cities in a more efficient and worthwhile manner.

Whether you read THE AMERICAN CITY in bed, your easy chair, or at the office, you will find it a good investment, both for your city and for yourself.



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470 FOURTH AVENUE
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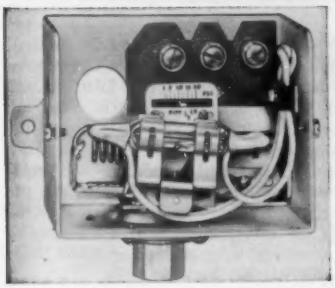


External adjustment, repetitive trip point, visible calibrated dial with pointer, visible hermetically sealed mercury contact are all features of Mercoid's new pressure control for air and gases.

point is easily set by external adjustment.

Contact for the unit is a hermetically sealed single pole, double throw switch, designed to handle 4 amperes, 115 volts or 2 amperes, 230 volts. It provides single pole, cut in high (close on rise); single pole, cut in low (open on rise); or single pole, double throw operation. Switch leads are of silicone rubber and covered.

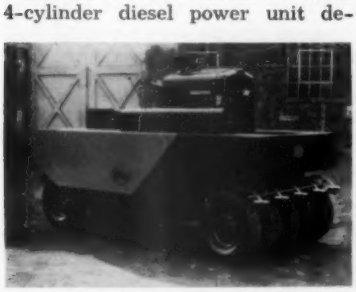
Pressure element for Type AP-153 is a Fairprene diaphragm; internal electrical connections, 3 post terminal block; wiring entrance, two ½" knockouts.

For additional information, write THE MERCOID CORP., 4201 BELMONT AVE., CHICAGO 41, ILL., or use the Post Card on Page 54. Circle No. 884.

Diesel-Powered Rubber-Tired Roller

Bros, Inc. recently introduced a gasoline - powered self - propelled rubber-tired roller of 10-ton capacity (SP-54B); now it announces a diesel-powered version of this unit, which it has designated Model SP-54B-D.

The SP-54-D's Hercules DD-226 4-cylinder diesel power unit develops 65 hp at 2000 rpm. The roller is equipped with torque converter and travels at speeds up to 20 mph. Each wheel is equipped with a plastic scraper for asphalt or sealcoating compaction work.



This new diesel-powered Bros 10-ton capacity roller features a hook-on hood over the final drive assembly that can be removed in just five seconds.

Other features of the new model include lower center of gravity for greater stability; automotive-type power steering, reversing clutch, and transmission; brakes on all four drive wheels; larger brake drums; and parking brake connected directly to drive shaft for added safety; plus full oscillation of all wheels. (These features are also incorporated in the gasoline-powered SP-54B.)

For additional information, write BROS, INC., ROAD MACHINERY DIVISION, 1057 TENTH AVE., S.E., MINNEAPOLIS 14, MINN., or use the Post Card on Page 54. Circle No. 883.

High-Powered Voice Amplifier

Compact and lightweight, Mighty Mike is applicable wherever a high-powered voice amplifier is needed.

"Mighty Mike" carries the human voice over one mile of open water or open country. It is suitable for police work, firefighters, schools and construction crews.

The self-contained, compact unit operates on eight standard flashlight batteries or from a 12-volt automobile battery. It is rated at 30 watts of power. According to the manufacturer, this is about three times the rating of other portable amplifiers.

A number of low cost accessories and attachments add to the versatility of this amplifier, the assembly of which has been epoxy treated and is impervious to moisture and temperature. Two volume ranges are possible.

Mighty Mike, which has been introduced by Hamilton Electronics Corp., Chicago 45, Ill., is distributed by BELL & GUSTUS, INC., 4328 N. ELSTON AVE., CHICAGO 41, ILL. For details, write the distributor, or use the Post Card on Page 54. Circle No. 882.

Protect Municipal Crews

With the introduction of two new models—the Utility and the Economy —Eastern Metal of Elmira, Inc. brings its popular "A" Stand line to a total of four road-tested units.

The Utility stand has special legs that prevent creeping. It features a large free-swinging 18" x 24" sign. This free - swinging characteristic gives the stand greater stability in high winds and traffic backwash. A Speed-E-Loc locks the stand in place; when it is raised, the stand folds flat for easy handling and storage. The stand's rust-proof frame is welded steel (red) and signs are lettered on both sides in bold black which is silk-screened against a chrome yellow field. A flexible baked enamel finish resists weather, vandalism and rough usage. The Utility model can carry two attention-getting red warning flags.

For those who want a low-cost, durable, lightweight yet stable stand, there is the Economy model. It employs a bonderized welded steel "A" frame which supports a free-swinging 18" x 18" steel sign for maximum stability. The sign is standard cut, not rounded, and is lettered on only one side. Provision is made for one flag.

For complete information, write EASTERN METAL OF ELMIRA, INC., 130 HARRISON ST., ELMIRA HEIGHTS, N. Y., or use the Post Card on Page 54. Circle No. 881.

The Utility (left) and Economy models, Eastern Metal's most recent additions to its "A" Stand safety units.

ABOUT PEOPLE

Joseph Rosenblatt, president of The Eimco Corporation of Salt Lake City, Utah, has the distinction of being the first person from the Intermountain West to be elected an industrial director of the Federal Reserve Bank of San Francisco. In order to accept this position, Mr. Rosenblatt will resign his position as Chairman and member of the Board of Directors of the Salt Lake City branch of the Twelfth District Reserve Bank.

J. Rosenblatt

The appointment of Harold G. Blassey to the New York Domestic Branch Office of **Cooper-Bessemer Corp.,** Mt. Vernon, Ohio, has been announced by George Edick, sales manager, Domestic Division.

Robert W. Kerr, production executive with vast experience in the machine industry, was elected president of **Fairbanks, Morse & Co.,** Chicago, Ill. He succeeds Robert H. Morse, Jr., who was named vice chairman of the Board.

Richard G. Fuller, recently appointed a district representative for **Clark Equipment Company's** "Michigan" line of construction machinery, will serve distributors in Indiana, Illinois and Iowa.

Frank Marold, sales vice president of **Griffin Wheel Company Pipe Division,** recently announced the appointment of Marvin Simpson as district manager, Chicago sales. He will serve Illinois, Indiana, Michigan and southern Wisconsin.

Morris Wolfe has moved from Rochester, N. Y. headquarters of Pfaudler-Permutit, Inc. to New York City to become manager of the Chemical Sales Department of **The Permutit Company,** for which a five-year expansion plan has been announced.

Theo. H. Jones has been elected vice president - general sales manager of **Mack Trucks, Inc.,** Plainfield, N. J., according to an announcement by Elliot G. Ewell, executive vice president-sales. Mr. Jones is a veteran in the field, and has been with the Mack Company since 1930, holding posts of sales representative and district manager.

T. H. Jones

Donald W. Harrington is now a field representative for the **Cast Iron Pipe Research Association, Chicago, Ill.,** according to word received from Thomas W. Wolfe, managing director. Mr. Harrington will represent the Association in seven southern states and will headquarter in Atlanta, Ga.

D. W. Onan Inc., Minneapolis 14, Minn., which recently separated its advertising and sales promotion activities, has named William J. Auger as sales promotion manager. George Burda, who headed the combined departments, will continue to direct and administer all opertions for which he had been responsible at the company's factory. His new title is advertising manager.

W. C. Auger

C. W. Moss has been named vice president and general sales manager of **Willys Mortors, Inc.,** Toledo 1, Ohio. He will have responsibility for all Willys domestic and government sales activity.

With the election of Edward J. Rogers,, the board of directors of the **Koehring Company, Inc.,** Milwaukee 1, Wis. now has a full complement of ten members. Mr. Rogers is also president and chairman of the board of directors of the Layne-Northwest Company, Wauwatosa, Wis., large industrial and municipal well drilling contractors, and is chairman of the board of Layne and Bowler, Inc., Memphis, Tenn.

E. J. Rogers

H. Bach Nielsen and Charles F. Von Dreusche, Jr. have been appointed assistant vice presidents of **Nichols Engineering & Research Corp.,** New York, N. Y.

Dr. George E. Symons has re-opened his consulting office on a full-time basis and will offer services as a consultant in the field of sanitary engineering and as a consulting editor and writer of technical articles, brochures, bulletins, market study reports, and research and development reports. Dr. Symons is a special consultant to the Engineering Services Division of the U. S. Public Health Service and was recently elected as a Trustee of the New York Section of AWWA. His office is located at Larchmont, N. Y.

Thomas H. Spence, formerly chief of construction and surveys for The Metropolitan Saint Louis Sewer District, and Cay G. Weinel, Jr., formerly chief engineer, Crow Contracting Corp., and design engineer, Russell & Axon Consulting Engineers, announce the partnership of **Spence & Weinel** for the practice of consulting engineering in the field of civil, municipal, architectural, construction with offices at 3837 West Pine Blvd., St. Louis 1, Mo.

Walter E. Max has been appointed assistant general manager of the Compressor and Engine Division **Worthington Corp.,** Harrison, N. J., according to George Steven, General Manager of the Division.

Wallace & Tiernan Incorporated, Belleville, N. J., has promoted William Henderson to the position of advertising manager. As such, he will be responsible for the advertising and promotion of W & T's equipment division, whose products include chlorination and chemical feeding equipment, precision instruments, processes for the food industry and corrosion control systems.

W. Henderson

Paul A. Wick joined the legal department of **Rockwell Mfg. Co.,** Pittsburgh, Pa., in 1946. He was named assistant secretary in 1948, and has been acting as assistant to the president since 1951. Following a recent meeting of the Rockwell board of directors, W. F. Rockwell, Jr., company president, made known Mr. Wick's election as secretary of the company.

P. A. Wick

Several changes among regional field promotion managers and the addition of six men to the field promotion staff of the **Douglas Fir Plywood Association,** Tacoma 2, Wash., have been made known by W. E. Difford, managing director.

Among the regional field promotion managers, Darwin C. Boblet, formerly Cleveland manager, has been transferred to New York City. Vern Haskell, formerly Senior Field Representative in Detroit, is now the Detroit regional manager. W. D. Page, who has been regional manager in Chicago, has been named executive vice president of the Plywood Fabricators Service, Inc., and

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About People

Don Lockridge, who was senior field representative in the Detroit area, has assumed the Chicago managership.

Members of the DFPA Field Promotion Department, which is headed by Stanley A. Taylor, work with plywood producers, sellers, specifiers, and users to provide information and advice on the product and its applications. Regional headquarters are maintained in ten cities. The latest additions bring the staff to 58.

J. B. Conner, president of **Dresser Industries, Inc.,** has announced the appointment of F. W. Laverty as president of Clark Bros. Co., Olean, N. Y., manufacturer of compressors and gas turbines and one of the original companies which merged to form Dresser Industries, Inc. Mr. Laverty succeeds J. N. MacKendrick, who has been appointed Chairman of the Board. In this capacity, he replaces C. Paul Clark, who has been given the post of Honorary Chairman.

General Electric Communication Products Department has moved its five-state southeastern regional two-way radio sales office from Atlanta, Ga., to Tallahassee, Fla. J. W. Bryant, previously regional manager at Atlanta, will be in charge of the new office, located in Tallahassee's Petroleum Building. M. G. McRae, G-E's northern Florida district mobile radio sales manager, will also have offices there.

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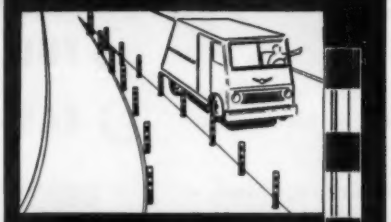

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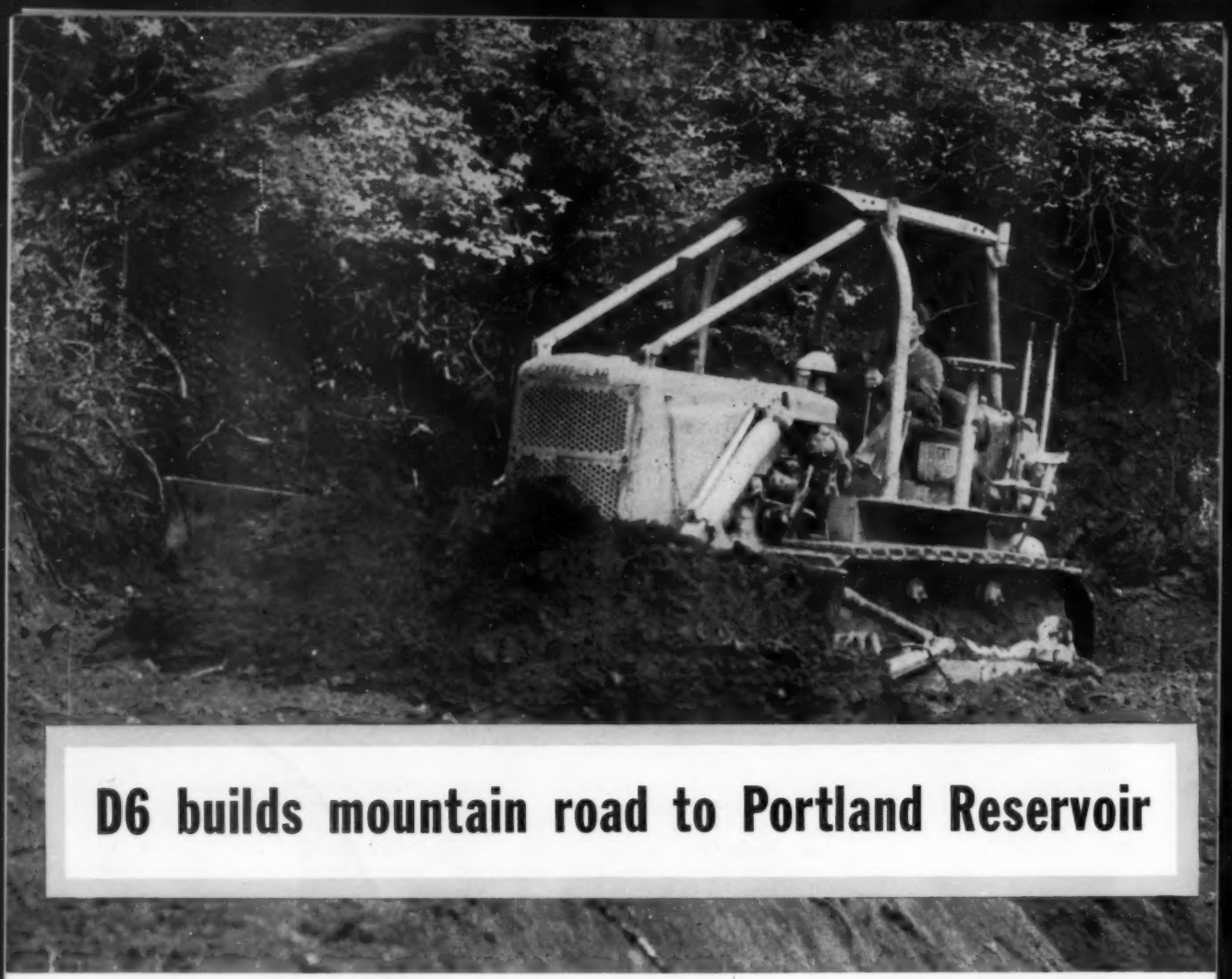

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2/3 cut in snow removal time

At least five important savings have been realized by the City of Cudahy, Wisconsin, since purchase of their 77 hp Michigan Tractor Shovel.

ONE, the Model 75A Michigan Tractor Shovel and its one operator have replaced two less powerful rubber-tired loaders and two operators.

TWO, a 15,000 lb class crawler-tractor, formerly needed for road grading, has been retired to non-travel duty on the Cudahy landfill.

THREE, Michigan's go-anywhere 26 mph mobility has eliminated truck-and-trailer transportation.

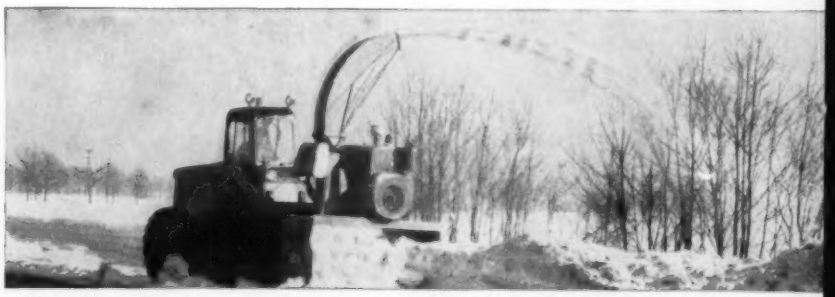
FOUR, the Michigan, equipped with snow blower, does the job of a highly-specialized, summer-idle $15,000 to $17,000 rig.

FIVE, the Michigan, with standard 1¼ yd bucket, pays off, both winter and summer, by speeding all types of stockpile, highway-repair, other loader jobs.

Photo above shows typical summer-time taxpayer service . . . picking up broken walkway concrete. Other assignments of this type include pickup of earth, brush, rubbish . . . digging pit-run for landfill cover . . . loading stockpiled sand, gravel, and stone (average: 10 tons in six passes, three minutes). Michigan also plays major role in highway construction: levels grades . . . spreads fill . . . tows rubber-tired roller and pulvi-mixer.

Alleys cleared, Michigan next removes curb-windrowed snow from main traffic and business routes. Here, for speed, the blower is used. This attachment consistently blows 4 cu yds into a truck in only 30 to 60 seconds! Time is "less than one-third" that required for bucket loading, according to James Tiry, Cudahy Director of Public Works. "Another advantage of the blower," says Tiry, "is that it chops the often-icy snow so you get more than twice the weight into a truck-load as you do with straight bucket-loading."

In winter, they replace the Michigan bucket with an easy-to-mount 10 ft V-blade; plow alleys, occasionally city streets. To clear the 13¼ miles of alleys located within the city's boundaries takes the four-wheel-drive Michigan about eight hours. Machine's high-traction tires need no chains.



The City also uses the blower-equipped Michigan in undeveloped areas to throw windrowed snow 40 to 50 feet away from the road. This eliminates need for trucks and truck loading.

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